

RAILWAY AGE

Government in Business and Government Expenditures

The present depression has aroused strong public demands both for drastic reductions of governmental expenditures and taxes and for a reduction of government in business. The two demands, however different they may seem, are in large measure identical. The intrusion of government into business in numerous ways is responsible for many of the largest increases in its expenditures. As a reduction of its expenditures necessarily would involve its retirement from many of its present activities in business, so its withdrawal from many of its present activities in business would result immediately in a reduction of many of its large expenditures that are responsible for present high taxes.

The reduction of government in business, and the consequent reduction of governmental expenditures and taxation, are being and will be strongly opposed by two classes. The first of these is government employees. The second is composed of those who derive, or believe they derive, business advantages from having the government in business in various ways. It will require more than mass meetings, speeches, the adoption of resolutions and the creation of public sentiment to reduce government in business and government expenditures. Political methods will be used to prevent their accomplishment, and without the effective use of political methods in their behalf they will not be accomplished.

Transportation As An Example

Nobody can see more easily or clearly the relationship between the increase of government in business and the increase of government expenditures than those familiar with past developments and present conditions in the field of transportation. In 1910 the Interstate Commerce Commission spent about one million dollars. In that year Congress increased its power by authorizing it to suspend and pass upon all proposed advances in rates. In 1913, to give it a basis for exercising its enlarged power, Congress directed it to make a valuation. Step by step its power and duties were enlarged

and government in the railroad business increased. In 1920, the year the Transportation act was passed, the commission's expenditures were \$5,700,000, or almost six times as much as ten years before. In 1931 they were \$9,400,000, or nine times as much as in 1910 and 60 per cent more than in 1920. Before the law providing for a valuation was passed it was estimated it would cost only about five million dollars. The commission has now spent about \$40,000,000 on it and the railroads \$140,000,000, although the work is not done yet and apparently never will be of any use. The experience of the railways illustrates that the cost of government interference in business cannot be measured merely by the expenditures made by government. The expenditures of the commission, a government body, were nine times as great in 1931 as in 1910, and yet it cost the railways a great deal more to be regulated than it cost the commission to regulate them.

In addition to being in the transportation business through its regulation of the railways, the government, including that of both the nation and of the states, is in the transportation business in at least three other ways. First, it owns the barge line on the Mississippi river system, which it operates at a loss in competition with the railways. Its retirement from the barge line business would immediately reduce government expenditures and save the taxpayers a corresponding amount of money. Secondly, the government is in the transportation business because of its expenditures upon waterways and its failure to charge tolls for their use sufficient to cover their fixed charges and the operating and maintenance costs. The imposition of adequate tolls for their use would immediately transfer the burden from the taxpayers to the waterway users. If their users found it unprofitable to pay tolls and continue to use them, this would be a demonstration that additional government expenditures upon similar or even less promising waterways were economically unjustifiable. The taxpayers would thus be saved money either because they would get paid for the use

of existing waterways or because they would be warned against further waste of their money on waterways.

Government in Highway Transport

Third, the government is in the transportation business through its provision of highways that it allows commercial motor vehicles to use for amounts insufficient to pay their share of the fixed charges and maintenance costs of the highways. Motor vehicle and gasoline "taxes", so-called, usually are not real taxes, because they are insufficient, in the aggregate, to pay the entire interest and maintenance costs of the highways, and contribute anything toward the support of government, and a real tax is a levy made for the general support of government. A British government committee including four railway heads and the heads of four important highway transport companies, and having for its chairman Sir Arthur Salter, recently has unanimously reached the conclusion that for the next five years the entire cost of constructing and maintaining roads ought to be borne by the users of motor vehicles, and that the entire increase in the highway charges made should fall upon the operators of commercial vehicles. The less government pays for the construction and maintenance of highways and the more the operators of buses and trucks are required to pay, the less government will be in the transportation business and the smaller will be the taxes that the general public will have to pay for highway purposes.

Current public discussion might lead to the belief that the sentiment for reduction of government in business and of government expenditures and taxation is almost universal, but this is far from true. For obvious reasons very few employees of local, state and national governments want them reduced. Furthermore, many business men want the government to continue to operate the Mississippi valley barge line and to continue to spend money upon waterways without charging tolls for their use. Likewise, many motor vehicle manufacturers, operators of buses and trucks, and manufacturers of road-building machinery and materials want the government to continue to make large expenditures upon the highways at the cost of the taxpayers in general because they believe the shifting of a large part of the highway burden from the taxpayers to the commercial users of the highways would be inimical to their business interests. Many illustrations from other fields beside transportation might be cited to show that even among business men, who are almost unanimously advocating less government in business and lower taxes, there actually is much sentiment against reduction of government in business and reduction of taxes.

Only Political Methods Will Win

It seems plain, however, that many kinds of business cannot survive under private ownership, and that real and lasting prosperity cannot be restored, without great

reductions of government in business and of government expenditures. How, then, are these ends to be attained? They can be attained only by organized action, and that action, to be effective, must be largely political. The determination of public policies and public expenditures is in the hands of politicians. They will change these policies and reduce these expenditures only if convinced that it has become to their political interest to do so. Few besides those who have become convinced that it is to their selfish interest to bring about reductions of government in business and government expenditures will contribute toward the funds and participate in the work necessary to accomplish these purposes.

What seems to be needed, then, is a national organization with local branches absolutely dominated by persons who have everything to gain and nothing to lose by reductions of government in business and reductions of government expenditures, and which will so operate as to carry conviction to a sufficient number of politicians that the way to secure political preferment is to make these reductions. An organization composed of such persons and already functioning is the Federation of American Business. It was originated by business men who were being threatened with ruin by government competition under the Farm Relief act. It has been joined by business men in many other lines who have seen that they also are being threatened with ruin in the same way. It was indirectly responsible for the creation by the House of Representatives of the Shannon committee, which is holding hearings throughout the country to expose the almost innumerable intrusions of government into business, and their results in both injuring business and increasing taxes.

Individual Industries Seem Helpless

For many years the railways have been resisting forms of government regulation which have been constantly reducing their earning capacity; and more recently they have been fighting government subsidization of competition with them upon the waterways and the highways. Other industries have been similarly trying to defend themselves. The resistance offered by these industries separately has been ineffective. The combination of socialistically minded economists, tax eaters, business interests seeking to secure regulation and subsidies for their own benefit, and politicians seeking to promote their interests through appeals to public prejudice and raids upon the public treasury has been too strong. Government activities have constantly become more harmful to business, and total government expenditures have increased from about three billion dollars in 1913 to the staggering sum of 15 billion dollars in 1932.

Is not the only solution of the problem of largely reducing government in business and government expenditures to be found in the backing by all of those who really desire to attain these objectives of the

American Federation of Business or some similar organization which will use political methods effectively? There is much beating of the tom-toms now about government expenditures and taxation and about government in business, but mighty little is actually being accomplished. The problem is one of both economics and politics. In politics, as in everything else, one man who will really work is worth a hundred with sound views who will not work. Every payroller participates in the nomination and election of public officials, while one-half of all citizens do not vote and only a very small fraction of these really take any part in determining who shall be put up for them to vote for. It is highly probable that without organized national, state and local political action by those who are really opposed to government in business and excessive government expenditures the present agitation will accomplish nothing and that the socialization of business and increases of taxation will continue until they will become even more destructive of the national welfare than they are now.

Express Agency In New Trucking Venture

It has long been predicted that the Railway Express Agency would, sooner or later, engage in the transportation of freight by motor truck on the highways. This has been expected for the reason that the express agency, like the railways, is suffering from truck competition and has lost a substantial amount of its express business, and for the reason also that the express agency, experienced in truck operation in terminals, and a subsidiary of all the major railways, would be a logical medium through which the railways could act as a unit in meeting truck competition with truck operation. This expected action has now taken place. Within the last few days, the Railway Express Agency, through its subsidiary, Railway Express Motor Transport, Inc., has begun the operation of two inter-city truck routes, between Chicago and Milwaukee, Wis., on the one hand, and between Chicago and South Bend, Ind., on the other.

Service Is Experimental

The service is admittedly experimental. The two routes provide a proving ground upon which the express agency will test out its ideas concerning the type of freight transportation service which will attract traffic. While it is much too early, of course, for any definite results to have developed, still it is possible to estimate the company's chances of success.

From an operating standpoint the service appears well arranged. Both pick-up and delivery service are provided, freight can be received at the various sta-

tions until relatively late hours in the evening, and the other features of service by which competitive truck lines have won business from the railways are fully duplicated. Furthermore, the schedules are so arranged that overnight service is possible not only on the lines between Chicago and Milwaukee and Chicago and South Bend, but also over the entire combination of routes from South Bend to Milwaukee, a distance of nearly 200 miles. New equipment for the inter-city service has been provided, and with the express agency's known reputation for fast and dependable service, there can be no doubt that the system will function as it should.

Rates May Prove Too High

Grave doubt as to the likelihood of success of the project arises, however, when consideration is given to the rates which have been put into effect by the express agency's subsidiary. With steam railways, an electric railway and numerous truck lines operating between Chicago and South Bend, and with steam railways, an electric railway, boat lines and more truck lines operating between Chicago and Milwaukee, competition on the route established by the express agency is of the keenest. Naturally, this competition has resulted in low rates for the transportation of freight. Rate-cutting is an every-day occurrence on the truck lines, and the steam and electric railways themselves have adopted various expedients by means of which their rates have been reduced to a point where they have at least a chance of getting some business. The rates established by Railway Express Motor Transport are about half the express rates in effect, but they are still higher than the l.c.l. class rates of the railways, and, of course, much higher than the rates offered by competitive truck lines. These facts do not augur success for the express agency's venture.

Nevertheless the officers and representatives of the express agency are soliciting business with confidence. It is their feeling that the business communities served will welcome the opportunity to patronize a truck line sponsored by an experienced, reliable, dependable concern, which the Railway Express Agency certainly is. The experiment will be well worth watching. It represents a somewhat radical departure for the express agency, and it should throw considerable light on the question of the value placed by shippers upon regular and dependable service as compared to that placed by them on low rates.

GOVERNOR PINCHOT OF PENNSYLVANIA has signed the bill recently passed by the legislature of that state requiring commercial motor vehicles from other states to obtain Pennsylvania registration if they operate there for more than 15 days. The law previously granted 30 days of grace to vehicles from other states. The new law also requires non-resident drivers to obtain Pennsylvania licenses after the 15-day period has elapsed and fixes the fine for violations at \$50. Motor vehicles owned by non-profit associations and used for hauling farm products owned by members are exempt.

Taking the Threat Out of a River

Kansas City Southern installs cribs and revetment at two critical points on the Arkansas to protect its line and valuable public property

A TOTAL of 2,048 lin. ft. of rock-filled timber cribs and 11,327 lin. ft. of heavy-stone revetment, requiring more than 228,000 cu. yd. of large stone, were installed by the Kansas City Southern at Redland, Okla., and Braden's Bend to arrest the encroachment of the Arkansas river on its roadbed. Taken together, these projects cost \$310,000 and embodied the application of two forms of protection work. In addition, the history of the railway's experience with this treacherous river at these two locations forms an interesting record.

Characteristics of the Arkansas

Rising in the Rocky mountains, the Arkansas flows east and southeast for 1,400 miles, draining 189,000 sq. mi., to become the second largest tributary of the Mississippi. After it leaves the mountains, it becomes a tortuous, meandering stream in a wide valley, with low, sandy, easily eroded banks, which is constantly changing its channel during periods of high water as a result of bank erosion. Until it reaches Oklahoma, the Arkansas has no important tributaries, but in this state it receives the waters of Salt Fork, the Cimarron, the Verdigris, the Neosho, the Canadian and the Poteau

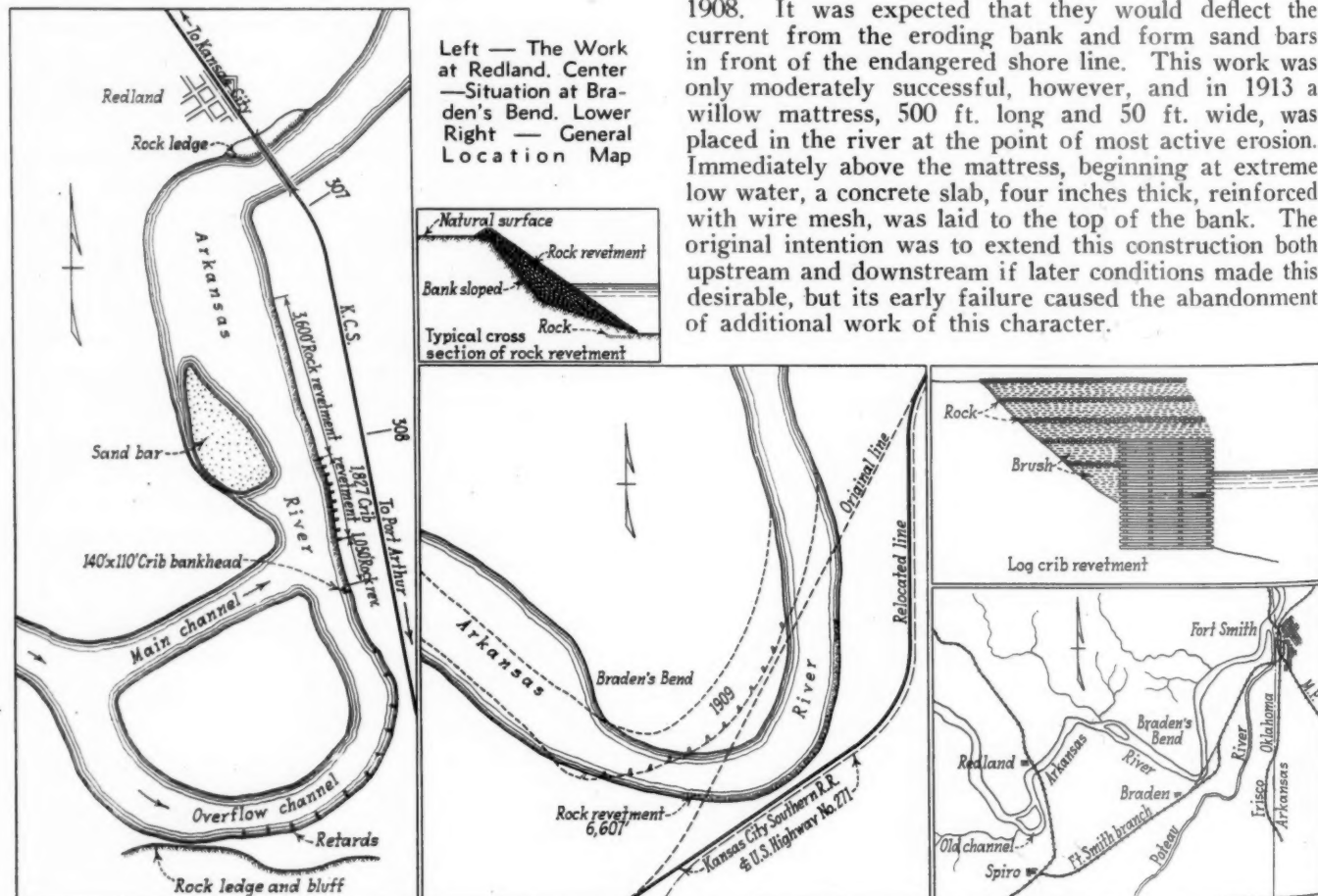
ivers. The Poteau empties into the Arkansas at Ft. Smith, Ark., almost on the Oklahoma line. For the last 12 miles of its course it parallels the Arkansas, forming a peninsula of alluvial bottom land, averaging about two miles wide but only three-quarters of a mile wide at the narrowest point opposite Braden's Bend.

The Kansas City Southern crosses the Arkansas at Redland, 307 miles south of Kansas City and about 11 miles west of the Arkansas-Oklahoma line. From Spiro, five miles south of this crossing, a branch runs north-easterly 16 miles to Ft. Smith. For about 12 miles of this distance this branch occupies the narrow peninsula between the Arkansas and Poteau rivers, and at Braden's Bend, about half way between the termini, is immediately adjacent to the former.

Conditions at Braden's Bend

When this branch was built in 1897, it was located about 1,500 ft. south of the apex of the bend. During the following 10 years the river kept cutting south at this bend, the rate of movement being greatest in the period from 1905 to 1907, until in the latter year it had almost reached the track.

To protect the bank from further encroachment, 13 fascine retards of the mud-cell type were installed in 1908. It was expected that they would deflect the current from the eroding bank and form sand bars in front of the endangered shore line. This work was only moderately successful, however, and in 1913 a willow mattress, 500 ft. long and 50 ft. wide, was placed in the river at the point of most active erosion. Immediately above the mattress, beginning at extreme low water, a concrete slab, four inches thick, reinforced with wire mesh, was laid to the top of the bank. The original intention was to extend this construction both upstream and downstream if later conditions made this desirable, but its early failure caused the abandonment of additional work of this character.



Completed Log-Crib Revetment. Note the Auxiliary Bankheads at the Ends of Every 203-ft. Section



At this stage the stream had encountered a soil which was more resistant to erosion, and its southward movement was much retarded. While emergency protection was required during the flood stages of 1915, 1918 and 1919, the cutting of the bank did not again become rapid enough to cause concern until 1922 and 1923, when the recession reached such alarming proportions that a relocation of 2.9 miles of that part of the line which was most seriously endangered was undertaken in 1924.

Based on the known eccentricities of the river, it was thought that by shifting the line about 2,000 ft. south of the sharp apex of the bend, it would be safe permanently, since it was believed that the erosion would never extend that far. Despite this wide detour, however, it became apparent in 1928 that the river would again undermine the track unless still more determined efforts were made to prevent it.

This time, however, a consummation of the threat would have had still more serious consequences, because the neck of land separating the Arkansas and Poteau rivers opposite Braden's Bend had been reduced to less than three-fourths of a mile. If this should be cut through to form a junction of the rivers at this point, it would result in damage of great magnitude, which would affect numerous interests. In this event it would be necessary for the Kansas City Southern to build eight miles of new line at an estimated cost of \$1,000,000. The Oklahoma Highway Commission, which maintains an improved highway south of and parallel to the railway, would be compelled to make a similar and proportionately expensive detour. Furthermore, Ft. Smith depends on the Poteau river for its water supply, which is taken below the point where the rivers threatened to join. Since the water from the Arkansas river is unfit for use, the city would have to develop a new source from which to obtain its water. In addition, a large area of valuable farm land would be destroyed.

An Emergency Existed

By 1930, the southward movement of the river had progressed to the point where an emergency existed. After extended conferences between the Kansas City Southern, the Oklahoma State Highway Commission and the City of Ft. Smith, it was decided to install flood control work at joint expense. This decision was influenced by the fact that the local land owners had already made a determined effort to finance flood control work, including bank protection, for themselves, but had found it impossible under existing laws to form a conservancy district. Neither were they able to make direct contributions to the cost of the work, owing to the financial emergency then existing which had been brought on by previous floods and intensified by the later drought. At the completion of the work, which cost \$160,000, it was found that 65 per cent had been borne by the Kansas City Southern, 20 per cent by

the Highway Commission and 15 per cent by the City of Ft. Smith.

The type of revetment decided upon was a rock blanket 6,607 ft. long, starting at a small slough at the upstream end of the work, along the bank of which a bankhead 600 ft. long was placed to prevent the river from cutting behind the revetment. This bankhead is included in the total length of 6,607 ft. and is of the same construction as the revetment used in the main stream. This type was selected despite its higher cost, because the rock bottom of the river precludes the possibility of driving piles and makes it difficult to hold lighter and less expensive forms of protection.

The revetment, a cross section of which is shown in one of the illustrations, consists of a blanket of heavy boulders, many of which exceed two cubic yards, that extends from the exposed rock in the bed of the stream to about three feet above the high bank. Measured perpendicular to the general slope of the bank, the revetment is seven to nine feet thick. A total of 108,000 cu. yd. of rock, quarry measurement, was used in this work, which in place swelled to approximately 140,000 cu. yd.

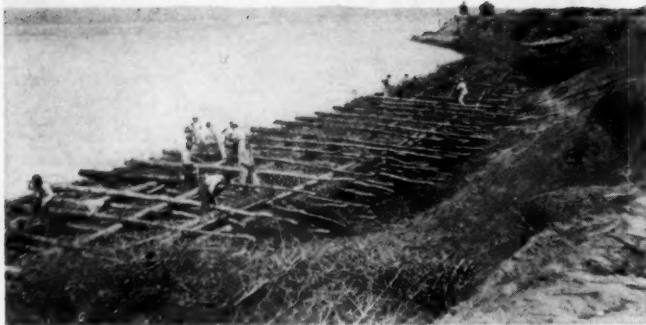
A quarry was opened especially for providing this rock, and its location entailed a haul of about 35 miles. After the overburden of dirt was removed from the rock strata in the quarry, rows of holes spaced 17 ft. apart, were drilled parallel to the loading track, and shot in groups of from 4 to 10. This was done to obtain boulders as large as could be handled by the two 3-yd. capacity steam shovels that loaded the cars.

Fifty-standard-gage air-dump cars were assigned to this service and were divided into two trains of 25 cars each. Two work-train crews were employed, and under favorable conditions 75 cars of rock a day were unloaded at the river. The unloading track was built along the bank, with the ends of the ties four feet from the edge in order that the cars could be dumped directly on the slope of the bank, thus allowing the boulders to roll into position by gravity. A Jordan spreader was then used to push the rock remaining on the edge of the bank over the shoulder. The work at Braden's Bend was commenced in January, 1931, and completed in June of that year.

Bank Protection Was Also Necessary at Redland

A somewhat similar situation with respect to bank erosion existed at Redland. Originally, the river was three-fourths of a mile from the point which has since become critical, and it was not until 1917 that it approached close enough to the railway to attract attention. From that time careful records were kept of the rate of approach, and by 1922 it had become evident that some form of bank protection would be necessary.

After much consideration, it was decided to install eight of the Woods Brothers type of retards. The ef-



Constructing the Log-Crib Revetment

fect of a heavy rise in the river, which occurred during construction, made it advisable to increase this number to 12. The retards were finished in 1924 and gave fair results, but because of the violent eddies which formed below and behind them, it was necessary to supplement them by eddy breakers. In the meantime, in 1923, the railway had completed the replacement of the superstructure and approaches of its old bridge over the river with a structure 1,593 ft. long, at a cost of \$200,000.

The retards gave satisfactory service until 1927, when during the flood of that year, the river cut a new channel approximately a mile north of the bluffs which had marked the limit of its southerly movement. By reference to the map it will be noted that the new channel directs the current almost at right angles to the bank, which parallels the railway, and at a point about 1,500 ft. below the downstream end of the previous work.

This created an entirely new situation, one result of which was an imminent threat of a new channel through the roadbed about $1\frac{3}{4}$ miles south of the bridge. It also called for methods of bank protection that were radically different from those that had been employed previously. By 1929, the threat had become so serious that preparations were begun in November of that year to start the work as early as practicable.

A Different Type of Protection Designed

A rock-blanket revetment was considered for this location, but the small quantity which was at first believed to be necessary made the unit cost so high that the expense was prohibitive. The form of bank protection adopted to resist the impinging action of the flood waters consisted of log cribbing filled with brush and rock, which was to be placed for a distance of 1,827 ft. along the east bank of the river at the focus of the cutting effort. Work on this bank protection was started in January, 1930, and was completed in July, 1931.

The protection consists of nine sections of log cribbing built up with alternate layers of brush and rock. The logs used in the cribbing were cut from green trees and had a minimum butt diameter of 7 in. and a top diameter of 4 in., which gave a length of 25 ft. or more. The log frame of each section is 203 ft. long and 21 ft. wide. The layers of logs are placed alternately as stringers and as ribs in rows 7 ft. apart, the stringers being placed lengthwise of the section and the ribs crosswise of the stringers. Each layer of stringers or ribs is securely bound to the one below by steel cable fastened with large staples. In addition, the entire body of the falsework is anchored to the bank at both top and bottom in several places along its length by means of steel cable fastened to deadmen.

In constructing these sections, the cribwork was built

in the open on skids at the water's edge, and was then pushed out to place, so that the work was always just about the water surface. When this framework was pushed out to the desired location, it was floored over solid with brush. Above this flooring, the cribwork was continued and filled in with alternate layers of brush and rock. First four sets of stringers and ribs were placed, with brush between each row of logs in each layer. Then an open cribwork, consisting of two sets of stringers and ribs, was built and this was filled in level with one-man stone. Each section was built up in this manner to a height of about 14 ft. below that of the river bank.

As a measure of the magnitude of this part of the work, it was necessary to cut and trim 15,100 trees to form the framework of the cribs, while 5,571 cords of brush, part of which consisted of the branches trimmed from the trees, were used to form the platforms upon which the layers of rock were deposited. The steel cable which was used to bind the layers together and to anchor the cribs to the bank, ranged from $\frac{1}{2}$ in. to $\frac{3}{8}$ in. in diameter, and a total of 311,480 lin. ft. was required. A total of 57,000 cu. yd. of stone was used in the cribs and in the stone-blanket revetment which was installed later, as will be explained, to extend the protection afforded by the crib. The quarry stone swelled to 80,000 cu. yd. in place. It was obtained from the stone quarry that furnished the stone for the Braden's Bend work. In addition, 8,000 cu. yd. of stone from another source was used in the log crib work before the quarry was opened.

How Erosion Occurs

The action of the water at this point removes a stratum of sand which lies slightly above ordinary water level. Following this undermining, large sections of the unsupported bank fall and are carried away by the stream. After the bank was protected against this direct cutting action by the nine sections of crib-work, there was still a possibility that a current might form behind the cribwork sufficient to cause damage. To prevent this, an auxiliary bankhead was constructed at the ends of each 203-ft. section. There are 10 of these in all. They extend from the outside edge of the section back to the bank, and are built up to a height which brings them level with the top of the bank. Thus they serve the dual purpose of preventing the formation of a current behind the crib at moderate stages of the

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A View of the Completed Rock Revetment at Braden's Bend

Taxation and the Railroads*

Bus and truck operators in aggregate pay no taxes at all—What they pay is an entirely inadequate rental for commercial use of public property—Taxpayers meet the deficit

By Samuel O. Dunn

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WITH the total expenditures of our governments in the terrible depression year of 1932 amounting to about fifteen billion dollars, and exceeding those ever made in any previous year, it is not surprising that there is an almost universal outcry against unfair and excessive taxation.

The railways are being injured more by the way in which taxes are assessed and spent than any other American industry. Relatively the greatest increase in taxes has been upon real estate, and as the railways are large owners of real estate they are sharing with its other owners the burden of crushing taxation that has been imposed upon it. The railways also are suffering from the way in which a very large part of the taxes collected from the public generally are levied and spent, because so large a part of all these taxes are used to subsidize competition with them. Finally, the railways are suffering disastrously from present ruinous taxation, because by depressing general business, it reduces the volume of their traffic.

Tax Collector's Financial Yield from Railroads Is Greater Than That to Their Owners

To avoid bankruptcy the railroads, like every other industry, must pay interest upon their outstanding bonds. In the first six months of 1932 their net earnings amounted to \$261,000,000. But this sum could not be applied to the payment of interest charges, because national, state and local tax collectors immediately took \$149,000,000, or 57 per cent of it, leaving to the railways themselves only \$112,000,000, or 43 per cent, of their net earnings.

We consequently have the astonishing spectacle of government, with one hand, taking from the railways more than half of their net earnings in taxes, thereby making it impossible for them to meet their interest charges from their earnings, and then, with the other hand, lending them money at six per cent to pay these interest charges, which it borrows at four per cent. The part of their earnings that the tax gatherers left them was enough to pay less than one-third of the interest upon their bonds and other fixed charges. How long do you think that private ownership of the railroad or any other industry can survive under a government policy that takes more of its net earnings in taxes than it leaves it with which to pay merely interest upon its bonds?

The seizure this year of more than one-half of the net earnings of the railways in taxes is merely the culmination of many years of government spending and taxing which has increased the taxes of the railways out of all proportion to the increases in their earnings and operating expenses. Between 1913 and 1929 rail-

way earnings and expenses increased about 100 per cent, while meantime their taxes increased almost 250 per cent. Developments in practically all other industries were similar. In virtually all industries taxes increased relatively far more than earnings or operating expenses because the cost of conducting our governments increased far more than either the earnings of private business or the expenses of conducting it. All taxes are, and must be collected from wages, salaries and other incomes derived from private business. How long can the incomes derived from private business stand increases in taxes three or four times as great as the increases in the incomes themselves?

Lending Money to Prevent Bankruptcies for which Government Extravagance Is Responsible

The earning capacity of the railways and other private industries has now been so completely crushed by the enormous burden of taxation imposed upon them by extravagant and reckless government expenditures that the federal government, which has almost the only credit left which the public and financial institutions will accept, is increasing its indebtedness by billions of dollars to make loans to banks, railroads and other private business concerns to prevent a general economic collapse and almost universal bankruptcy.

As I said in opening these remarks, the railways are being injured not only by being required to pay excessive taxes themselves, but also by the way in which a very large part of the taxes collected from the public generally are used. During the eight years ending with 1930 we spent not only many millions of dollars upon inland waterways but approximately 19 billions of dollars upon highways and city streets. Carriers operating upon these waterways and highways are competing with the railways for traffic. The railways have to provide their own roadways and are heavily taxed upon their large investment in them, while the carriers that operate upon the waterways provided by public taxation are charged nothing for their use. The federal government, at the cost of the taxpayers, is also operating at a loss a barge line upon the Mississippi River system in competition with the railways.

Most Bus and Truck Operators Pay No Taxes at All

The highways and city streets are used by motor buses and trucks in competition with the railways. Claims are made that the operators of these buses and trucks are paying large taxes which compensate the public adequately for their use of the highways. I will make an assertion that will astonish most of my hearers, and this is that, as a matter of fact, most of these operators of buses and trucks are not paying any taxes at all.

What is a tax? The word is defined as "an enforced

*An address delivered over the radio on August 10 under the auspices of the Illinois Chamber of Commerce.

contribution levied upon persons, property or income * * * for the support of government." Every cent of the taxes paid by the railways is, in this sense, a tax, while a charge for the use of public property is not a tax, but a rental. If a man were allowed to open a cigar store in a federal postoffice building what he paid for the privilege would not be a tax, but a rental. Our highways are just as much public property as a post-office building. Those who use them for the transportation of passengers and freight for hire plainly should be required to pay for the privilege, and the so-called motor vehicle and gasoline "taxes" they pay are not actually taxes at all unless these and other payments made by them to government are sufficient not only to compensate the public adequately for the use of the highways, but sufficient, in addition, to contribute, as railway taxes do, toward the support of all the educational, police and other functions and activities of government.

Now, who actually pays for the construction and maintenance of our highways? Why, of the almost 19 billion dollars we spent upon all our highways, including city streets, in the eight years ending with 1930, only about four billion dollars, or 22 per cent, was derived from motor vehicle and gasoline taxes, while the remaining 78 per cent, amounting to almost 15 billion dollars, was derived from bond issues and general property taxes. Even as recently as 1930 only 30 per cent of the money spent upon highways and city streets was derived from motor vehicle and gasoline "taxes," so-called.

Commercial Operators Will Have to Pay Three Times as Much as at Present Before Real Tax Will Begin

Now in large measure, the public which owns the highways and streets also owns the 25 million private automobiles that run upon them, and it has a right to tax itself in any way it pleases for the provision of highways for such public use. But the operation for hire of huge buses and trucks upon the highways and streets is not a public use of them, but is the conduct of a private business for private profit. Generally speaking, the operators of buses and trucks do not pay relatively as high vehicle and gasoline "taxes," so-called, as the owners of private automobiles, and as the owners of all motor vehicles are not paying in vehicle and gasoline "taxes," so called, one-third of our total highway costs, it necessarily follows that the owners of buses and trucks would have to pay more than three times as much for the use of the highways as they are now paying before they would fully compensate the public for the use they make of its property to carry on their private business, and also contribute anything in real taxes toward the support of government.

The figures I have given indicate how enormous are our expenditures upon highways and city streets and to what extent they account for our present huge government expenditures. Motor buses and trucks are using city streets as well as highways, mainly at the expense of the taxpayers in general, and in doing so are taking so much traffic away from the railways as to threaten the railways with the necessity of tearing up a large part of their lines. This brings us to another phase of the tax problem.

In many rural communities and even entire counties, the railways pay most of the taxes used to support the schools and local governments. In Grant Township, DeKalb County, Indiana, for example, the New York Central Railroad pays more than 57 per cent of all the taxes collected, and I could mention 14 townships in Indiana in which this railroad alone pays from 25 per

cent to 74 per cent of all the taxes. In School District No. 534, Putnam County, Illinois, the Rock Island Railroad pays 42 per cent of all the taxes collected, and in Silvis, Illinois, it pays 44 per cent of all the taxes. There are many rural communities in all parts of the country in which the railways pay from one-fourth to three-fourths of all the taxes.

Destroy Railways and Other Tax Payers Will Have to Furnish Tax Money They Now Yield

Senator Couzens of Michigan, chairman of the Senate Committee on Interstate Commerce, has predicted that the competition of other means of transportation will make it necessary in the near future to abandon and tear up railroad property representing an investment of ten billion dollars. Most of this property would be torn up in rural communities. Will you tell me from what sources these communities would then get the taxes now collected upon this railroad property? They couldn't get it from the highways that the buses and trucks are using to destroy the investment in railroads, because the highways are owned by the public itself. They could not get it from the buses and trucks because they don't represent enough investment.

The plain fact is that if the public, by a continuance of its policy of subsidizing and not regulating buses and trucks, allows them to destroy a vast amount of taxable railroad property, the farmers and other people in rural communities will themselves have to pay the taxes now paid by the railroads.

The railroad problem is one of the most difficult and serious with which the American people are confronted. It has become largely a problem of taxation—a problem not only of how much taxes shall be collected from the railways, but of the extent to which the public shall continue to tax itself to aid carriers by water and highway to put the railways out of business.

The solution of our transportation problem and of that part of the tax problem which is indissolubly bound up with it, is very simple and obvious. Treat all kinds of carriers alike. Apply comparable regulation to them. Make them all pay their fair share of taxes for the support of government. If a carrier uses public property, whether a waterway or a highway, make it pay sufficient tolls or rentals for that use to cover all the costs of rendering its service. If it cannot stay in business without the public continuing to pay in taxes a large part of the costs of rendering its service, there is no economic justification for its staying in business.

The public would not tax itself to provide a man with space in a postoffice building in which to retail cigars in competition with other retailers of cigars who have to rent space in privately-owned buildings. Why, then, should the public tax itself hundreds of millions of dollars annually to provide highways and waterways to subsidize those who, for their own private profit, engage in transportation upon them in competition with the railways which have provided their own investment in the roadways that they use and pay large taxes upon that investment?

FOLLOWING COMPETITIVE EXAMINATIONS conducted by the College Entrance Examination Board for the Pennsylvania Railroad, two Frank Thomson memorial scholarships, each worth \$800 annually, have been awarded to sons of P.R.R. employees. The successful contestants were Alfred C. Roberts, son of A. P. Roberts, clerk in the secretary's department at Philadelphia, and Charles H. Campbell, son of C. H. Campbell, chief draftsman at Logansport, Ind.

Dispose of Inland Waterways

Shannon Committee told that barge line operation is uneconomical and unfair and rates discriminatory

THE railroads will recommend that Congress, immediately upon convening in December, shall pass a law providing that before July, 1933, the Inland Waterways Corporation shall cease operation and that, at the earliest possible date, the Secretary of War shall dispose of all properties of the Inland Waterways Corporation to the best advantage of the United States, according to a statement made by Bruce E. Dwinnell, special counsel for the Association of Railway Executives, when testifying at South Bend, Ind., on August 22-24, before the Shannon Committee of the House of Representatives, appointed to investigate government competition with private business. He supported this recommendation by stating that the longer the United States Government remains in the business of waterway transportation, the more money it will invest, the deeper it will become involved, the stronger will become its propaganda organization, and the harder it will be to dispose of it. The hearing was conducted by Representatives Joseph B. Shannon, chairman of the committee, Robert F. Rich and Samuel B. Pettengild.

Railroad Objections to Government Barge Line

"The railroads object to the Government engaging in the barge line business," Mr. Dwinnell testified, "because as an operating corporation, it secures the benefit of the expenditures of the taxpayers' money in the construction and maintenance of its waterways and then denies that these expenditures or any part thereof should be charged to it as a part of its transportation costs. Since 1924, there has been expended by the United States Government in construction work on streams on which the Inland Waterways Corporation now operates, or on which it expects to operate, the sum of \$70,000,000. And in addition, the United States Government has obligated itself to spend for construction work alone on these streams the further sum of \$150,000,000. In its annual reports these items are not taken into the account of the Inland Waterways Corporation, but a large part of these expenditures, which cannot be economically justified, are caused in order to provide suitable navigable streams on which the Government may operate its barges.

"The Federal Barge Line is only able to operate with the financial results which it has shown to date because the United States Government has constructed and maintained at enormous expenditures the waterways on which the barge line operates. The federal expenditures for the improvement of the barge line waterway, including the Mississippi river from St. Louis to New Orleans, and the Warrior river from New Orleans to Birmingham, from July 1, 1924 to June 30, 1931, have been \$54,664,379. At the rate of four per cent, the average annual capital carrying charge accumulated over this period would be \$1,119,985. The average annual cost of maintenance in this period has been \$3,871,601, which makes the carrying charge, plus the maintenance cost, \$4,891,586 annually, after subtracting the average annual net operating income of the federal barge lines from the average annual charges

to be met by the federal barge lines, there remains the average annual net cost to taxpayers of the United States by operations of the federal barge lines by the Inland Waterways Corporation of \$2,357,744 which applied against an annual average movement of traffic of 1,450,000 tons, represents a government subsidy per ton of \$1.50.

"The railroads object to the United States Government in the barge business," he continued, "because the Inland Waterways Corporation does not pay taxes on its floating equipment and does not pay interest on its investments. Besides, in fixing its rates and determining the cost of movement of materials, it does not figure taxes and interest as proper items of cost to take into the account.

"It is not only unfair competition," he said, "for the barge line operation of the government to be conducted without regard to taxes and interest returned, but it is also apparent that the barge line operation cannot prove that private enterprises can operate barge lines at a profit if the government barge line operation does not take taxes and interest into account."

Another objection was that barge line rates are fixed with a view to securing business and not with a view to operating at a profit as a private corporation must operate.

Secretary Hurley Says Barge Lines Must Continue

Patrick Hurley, secretary of war, in a letter to Representative Rich which the latter read into the record, stated that the government had not disposed of the barge lines because the requirements of the Dennison act creating the inland waterways, such as the construction of adequate terminals, channels, etc. have not yet been met. "It is necessary to note the proviso," Mr. Hurley wrote, "that the facilities of the corporation shall not be sold or leased (1) to any carrier by rail or to any person or company directly or indirectly connected with any carrier by rail or (2) to any person, company, or corporation who shall not give satisfactory assurance and agree, as part of the consideration for such sale or lease, that the facilities so sold or leased will be continued in the common carrier service in a manner substantially similar to the service rendered by the corporation, together with ample security to insure the faithful performance of such agreement. No person, company, or corporation has yet given or offered to give such assurance of agreement. The Inland Waterways Corporation and its officials are endeavoring in every manner to hasten the consummation of the mandates of the law, and are desirous of getting out of business at the earliest practicable moment; and the Interstate Commerce Commission is at this time engaged in making an appraisal and determining the fair value of the corporation's properties."

The first witness, Porter R. Leach, of the Federation of American Business, an organization representing 160 industries in 36 states, added a supplement to the brief which it filed at the Kansas City hearing on July 18 to show that other industries besides the 94 cited in the original brief were suffering great injury by

governmental competition and to urge that early relief be obtained with a view to bettering the general distress existing throughout the nation. This new evidence was in the form of letters of complaint from Chicago manufacturers and others representing the railroads, railway supplies, building, produce, publishing, dredging, iron works, paper and pulp, marking devices, warehousing, fertilizer manufacturers, cement and coal, grain, mattresses, nitrates and silk.

Walter J. Kelly, testifying for the Association of Railway Executives, dealt with joint rail-barge rates and their division to show how the railroads are forced to absorb part of the loss resulting from the low rates placed in effect by the barge lines. He showed also that the low rates of the barge lines are detrimental to private barge lines since the latter must consider taxes, etc. in fixing rates.

Mr. Kelly also complained of the manner in which barge rates are placed in effect. He stated that usually the rates are established without any general publicity and as a result the railroads are not familiar with the changes and cannot protest unfair rates until they discover them. He also called attention to rates on cotton, established in October, 1931, stating that although the barge rates were suspended, the barge lines continued to use them in some instances, arguing that contracts previously made had to be fulfilled. As an example of rate fixing, he cited the reduction of sugar rates where storage was furnished at less than cost and the placing of these lower rates into effect although the Interstate Commerce Commission had ruled against them.

Frank Theis, vice-president of the Simmons, Shields & Lonsdale Grain Company, Kansas City, testified that low rail or barge rates do not increase the amount of money received by the farmer for his wheat. In support of this he showed that when the railroads some time ago reduced grain rates $1\frac{1}{2}$ cents, the price paid the farmer dropped an equal amount. He contended that the farmer fails to benefit by lower rates because of the fact that the grain is moved by barge or rail only after the farmer sells it.

An interesting development in the hearing occurred during a discussion between Representative Hill and L. E. Banta, traffic manager of the Indianapolis Board of Trade, concerning the disposition of the barge lines. Mr. Hill asked if a buyer who is willing to assume the burden of taxes and maintenance costs could be found and Mr. Banta replied that if the barge lines were such a failure that no one cared to take them over and operate them, they should be given away and that if no one cared to operate them as a gift, their operation should be stopped and the properties sold for what they will bring, in order to stop the drain on public funds. Mr. Hill called attention to the number of politicians and others interested in keeping the government in business and urged chambers of commerce and boards of trade to bring influence to bear on their senators and representatives in order to assist in making the efforts of the committee effective.

D. P. Settlemyre, secretary and treasurer of the Mount Vernon Car Manufacturing Company, described the far-reaching effect of railroad supply companies in relation to employment and other industries. He contended that the success of the railroads is of more importance to the country as a whole than that of the barge lines and that the prosperity of supply companies and other industries associated with them depends on the railways and not on the future of the barge lines. To show the importance of the railroads and the equipment manufacturers, he cited the proposal made to

President Hoover that the railroads be given financial aid in building 150,000 cars because such a program would give work to more persons and industries than any other proposal under consideration by the government. The effect of railroad buying, he continued, is also demonstrated by the fact that they consume 30 per cent of the products of the lumber and steel mills and a large part of the output of iron ore mines, foundries and other manufacturers.

E. T. Buckland, chairman of the board of the New York, New Haven & Hartford, and president of the Railroad Credit Corporation, contrasted loans made by the government to railways with money given the barge lines to show that the former was a profitable business transaction, while the latter was a dole. He also analyzed the loans made by the Reconstruction Finance Corporation and the Railroad Credit Corporation to indicate that the railroads borrowed money from the government at six per cent interest to pay the government taxes. While the authorized loans from the Reconstruction Finance Corporation totaled \$255,537,565, he said, and those from the Railroad Credit Corporation, \$21,948,214, the actual loans made were \$145,653,540 and \$21,876,474, respectively. The loans repaid to each were \$6,166,679 and \$1,040,250 which brought the loans outstanding at the present time to \$139,476,861 and \$20,836,224, respectively. The loans approved for railroads in the Mississippi Valley totaled \$33,550,000 from the Reconstruction Finance Corporation and \$5,201,973 from the Railroad Credit Corporation. As a further demonstration of the profit to the government as a result of loans to railroads, he told of the loan of \$1,050,000,000 at six per cent made to the railroads during federal control. All this, except \$39,000,000 has been paid back, the amount repaid and interest being \$60,000,000 more than the cost of the money to the government. If the \$39,000,000 still owed by certain railroads is never repaid, the government will still have a profit of more than \$20,000,000.

"Net railway operating income of the Class I railways in the United States amounted, in the first six months of 1932, to a total of \$112,000,000," he continued. "This figure represented a reduction of more than 53 per cent below the corresponding earnings in the first six months of last year. Even more important, however, as indicative of the seriousness of the present railway situation, is the fact that this net railway operating income earned in the first half of this year is sufficient to pay less than half of the interest due upon railway bonds outstanding, and is less than one-third of the amount required to pay the total railway fixed charges which have accrued in this period."

"These figures have a peculiar bearing upon these present hearings which are devoted to the operation of the government-owned Inland Waterways Corporation, operating upon the Mississippi, Illinois and Warrior rivers in competition with the railroads which serve the same general territory. Because of the marked reduction in railway net earnings, it has been necessary for various lines, in order to pay their fixed charges, to borrow from the Railroad Credit Corporation or the Reconstruction Finance Corporation. With reference to my experience in directing the activities of the Railroad Credit Corporation, it is highly significant that a most serious financial situation has been forced on those railways which parallel the lower Mississippi river and which suffer, in consequence, from the competition of the federal barge line. No further illustration is needed to disclose the fallacy of the argument so often advanced by inland waterway advocates that development of inland waterways will not hurt the railways, but will

aid them through the provision of additional traffic. With the railroads paralleling the lower Mississippi river in a most serious financial condition, this beautiful waterway theory is completely denied by actual fact."

George C. Miller, president of the Dodge Manufacturing Corporation, Mishawaka, Ind., objected to a 15-year trial of any enterprise, any artificial means of setting up a community, any rate structure that does not protect the country as a whole and any development that helps a specific community at the expense of others. He also objected to contracts made by the Inland Waterways Corporation with certain shippers, wherein the rate is lower than the published rate. He advocated the application of depreciation charges to the federal barge lines, saying that some private barge lines charge a depreciation of 18 per cent on properties and as high as 33 1/3 per cent on wooden barges.

A. S. Shockey and J. B. Clegg, employees of the Missouri Pacific and Illinois Central, testified for employees of those railroads. They asserted that railroad employees were being laid off because of barge competition and since barge service is not economical and because the railroads employ more men than the barge lines, the interests of railroad employees should be protected.

Wilson V. Little, executive secretary of the American Warehousemen's Association, dealt with three phases of governmental intrusion into the field of private enterprise that the public merchandise and refrigerated warehousing operators of the country object to. These included (1) the storage practices of the federal barge lines, (2) the administration of the United States Warehouse act and (3) the utilization of surplus space in Army bases for public storage purposes.

"The government-owned Inland Waterways Corporation," he said, "offers warehousing service for the storage of sugar in its facilities at Helena, Ark., Memphis, Tenn., Peoria, Ill., Rock Island, St. Louis, Mo., St. Paul, Minn., Minneapolis, Vicksburg, Miss., Birmingham, Ala., Holt, and Mobile. At these river ports the federal barge line offers to store sugar in transit without making any charge for handling and its rate for storage is 1 1/4 cents per 100-lb. bag for the first 60 days or fraction thereof. At Minneapolis and St. Paul no charge is made for storing sugar for the five-month period between November 1 of each calendar year and March 31 of the next calendar year.

"The charge of 1 1/4 cents per 100-lb. bag made by this government agency for a 60-day period, compares with 8 to 12 cents per bag ordinarily assessed by public merchandise warehousemen for a like period. The five-months' free storage at Minneapolis and St. Paul compares with at least 13 cents per bag that warehousemen in those cities must charge if they are to be adequately reimbursed for the cost of storing sugar for five months in their plants. There has been no appreciable increase in the aggregate traffic movement of sugar since the federal barge lines instituted these storage arrangements, so that it may be said that the sugar now being stored in such large volume in its terminals has, for the most part, been diverted from the plants of taxpaying citizens—warehousemen—who formerly enjoyed this storage business and who had put their money in facilities to handle it."

Rome C. Stephenson, former president of the American Bankers Association, testified on railroad securities in relation to the barge situation. "Is it fair, equitable and just," he asked, "for the government of the United States to construct barge canals, and improve rivers, collect taxes from the railroads, to assist in the construction thereof and thus create an agency to enter

into active competition with the railroads? The barge canals or improved rivers pay no taxes and no interest on money invested, and are not encumbered with many other burdens imposed upon the railroads. In the meantime, the government has not only used the public tax funds to develop subsidized competition for the rail carriers, but it has actually entered the transportation business itself and is now competing with the railways which constitute one of the largest corporate taxpayers in the country.

"Through this socialistic enterprise, the government has helped to ruin those taxpayers whose profits the government has taken away from them. To show somewhat the total burden of taxation, let me say that if the tax burden, federal, state and municipal on American Railway trackage and rolling stock were reduced even to the amounts paid by Canadian railways per mile of trackage, American railways could carry free of charge the entire grain shipments, flour shipments, the U. S. government mails, and all livestock and make \$100,000,000 a year more than they are now receiving in net operating income.

"The construction by the government of barge canals and the improving of rivers work a hardship on the inland cities and towns that are not located thereon, as they pay their share of taxes for such creations. They receive no benefit and they will inevitably be affected by an increase in the railroad freight rates which must follow, as a result of the unfair competition imposed by the government.

"This competition between the railroads and the waterways is one of many activities of the government that is brought into competition with private enterprise and it is to be hoped that an aroused public will bring to an end the obnoxious and unwarranted activities of the United States in competition with our citizens."

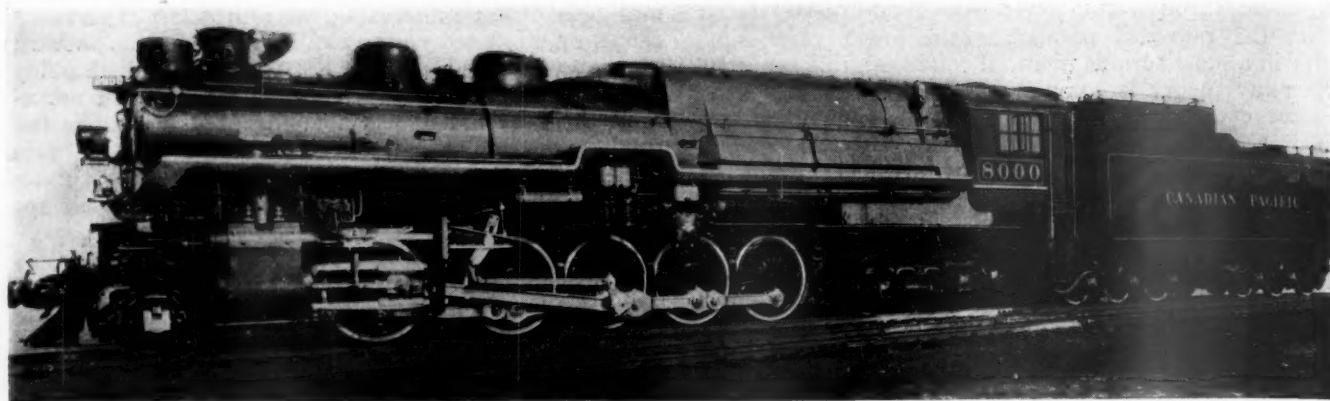
Taking Threat Out of a River

(Continued from page 284)

river, and also of reducing erosion of the bank from the direct cutting action of infrequent high water which rises above the protection afforded by the longer sections previously described.

The log-cribwork protection extends along 1,827 ft. of the river bank where the cutting was heaviest. It was thought, however, that protection should extend 1,050 ft. upstream to where the old channel of the river joins the present channel, and that it should also extend about 3,600 ft. downstream to insure that the current will be turned positively in the direction desired at the bridge. Before the crib was completed, the need for doing the work at Braden's Bend had arisen, and since it was necessary in any event to develop the quarry for that work, it was decided to extend the protection at Redland with the same type of rock-blanket revetment which was to be used at Braden's Bend.

The protection which was constructed at Braden's Bend and Redland has as yet been tested by only moderate rises, with the consequence that the resistance of both types to floods and their permanency under extreme conditions of flood are still undetermined. However, it is reasonably safe to predict the success of this construction, and it is believed that the long existing threat of the Arkansas river at the points in question has been overcome effectively and permanently.



Canadian Pacific Locomotive No. 8000 Equipped with the Elesco Boiler

Development of the Multi-Pressure Locomotive

American Society of Mechanical Engineers receives reports on
the design and performance of the Canadian Pacific
No. 8000 equipped with the Elesco boiler

THREE papers discussing various phases of the design and operating performance of the Canadian Pacific multi-pressure locomotive No. 8000 were presented at the spring meeting of the American Society of Mechanical Engineers which was held at Bigwin, Ont., June 27 to July 1, 1932, inclusive. These papers composed a symposium on the development of high steam pressures for locomotives which was sponsored by the Railroad Division. They were presented by H. B. Bowen, chief of motive power and rolling stock, Canadian Pacific; J. B. Ennis, vice-president, American Locomotive Company, and F. A. Schaff, president, the Superheater Company. C. E. Brooks, chief of

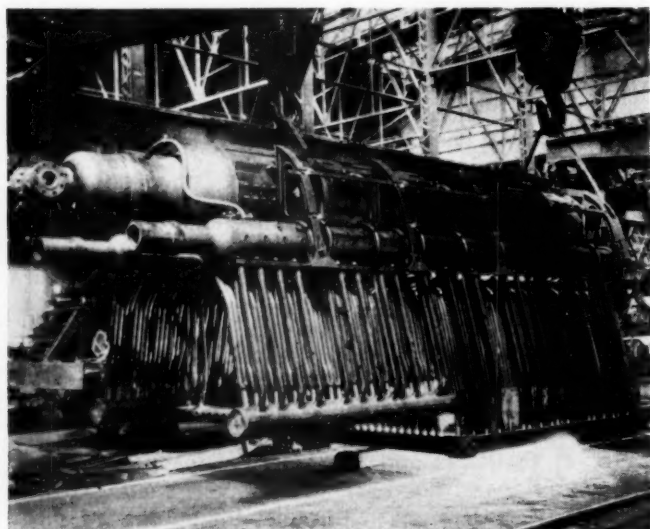
motive power and car equipment, Canadian National, presided at the meeting.

At the present time there are five locomotives of multi-pressure design which have been built for service in Europe and North America. The two locomotives on this continent are the No. 8000, 2-10-4 type on the Canadian Pacific, and the New York Central No. 800, 4-8-4 type. Both of these locomotives are equipped with what is known as Elesco boilers.

The C. P. R. locomotive, a brief description of which appeared in the May 9, 1931, issue of the *Railway Age*, was placed in service the latter part of May of last year. The second locomotive to be equipped with the Elesco boiler was delivered to the New York Central from the Schenectady, N. Y., plant of the American Locomotive Works the latter part of 1931. Both locomotives were designed through the co-operative efforts of the American Locomotive Company, the Superheater Company, and the mechanical departments of the respective railroads.

As was pointed out by various speakers at the Bigwin meeting, both locomotives follow the same general scheme of design with respect to the construction of the boilers and fireboxes. The essential differences pertain largely to the frames and running gear because of the differences in wheel arrangement. The New York Central locomotive, No. 800, which has been designated Class H8-1a, burns soft coal, while the Canadian Pacific, assigned Class T4a, burns oil.

The C. P. R. No. 8000, Class T42, was built for comparison with the road's Class T1a locomotives, which have the same wheel arrangement. A report of some of the results of the comparative tests are included in Mr. Bowen's paper. The following is an abstract of the paper presented at the Bigwin meeting by Mr. Schaff, which describes the steam generating system of the Canadian Pacific locomotive.



Front View of the Left Side of the Closed Circuit and High-Pressure Boiler

The development of steam generation has been characterized by a steady trend towards higher steam pressures. At the beginning of the century, locomotive boiler pressures had risen to 180 lb. or 190 lb. from 150 lb. or 160 lb., which had been considered high pressures during the preceding decade. By 1910, 200 lb. was generally regarded as the limit for simple-expansion locomotives, although during the compound era 215 and 225 lb. had been used to some extent.

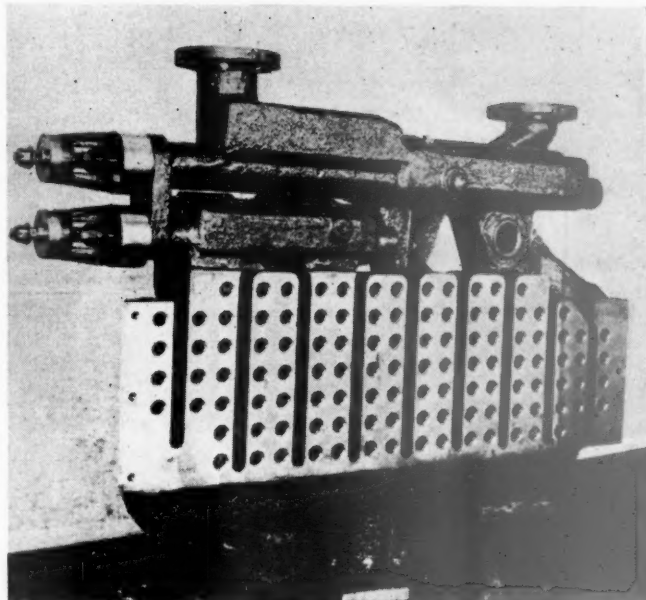
With the introduction of superheated steam there was a lull in the advance of pressures as the advantages gained by the use of superheat were adequate to meet the then requirements of added capacity and fuel economy. In more recent years the insistent demands for greater economy and higher sustained locomotive capacity with heavier loads and faster schedules caused designers again to increase the working steam pressure and also to provide for higher steam temperatures.

The locomotive boiler in all its major features has changed but little, save in size. It is true that proportions have been changed and many devices have been added which have materially increased the efficiency, but in the main the boiler is as it was a century ago. Brotan in Europe and others, following in his wake, built water-tube fireboxes to better provide for higher working pressures. This trend evidenced itself in America through the introduction of the Jacobs-Schupert firebox on the Atchison, Topeka & Santa Fe, the Baldwin Locomotive No. 60,000, the McClellan firebox on the New York, New Haven & Hartford, and more recently, the water-tube fireboxes on the Delaware & Hudson. The Gresley-Yarrow water-tube boiler on the London & North Eastern in England, and the Winterthur locomotive in Switzerland, represent constructions which aimed at suitability for higher working steam pressures.

With the present state of the art it is generally considered that the conventional type of locomotive boiler with stayed surfaces is not suitable for pressures above approximately 300 lb. per sq. in. It is essential therefore to utilize some sort of water-tube construction for pressures materially higher than this figure.

The Elesco Multi-Pressure System

The Elesco multi-pressure system as used on the Canadian Pacific No. 8000 seems to adequately meet not only the requirements for substantially high pres-



Bottom View of the Combined High- and Low-Pressure Superheater Header

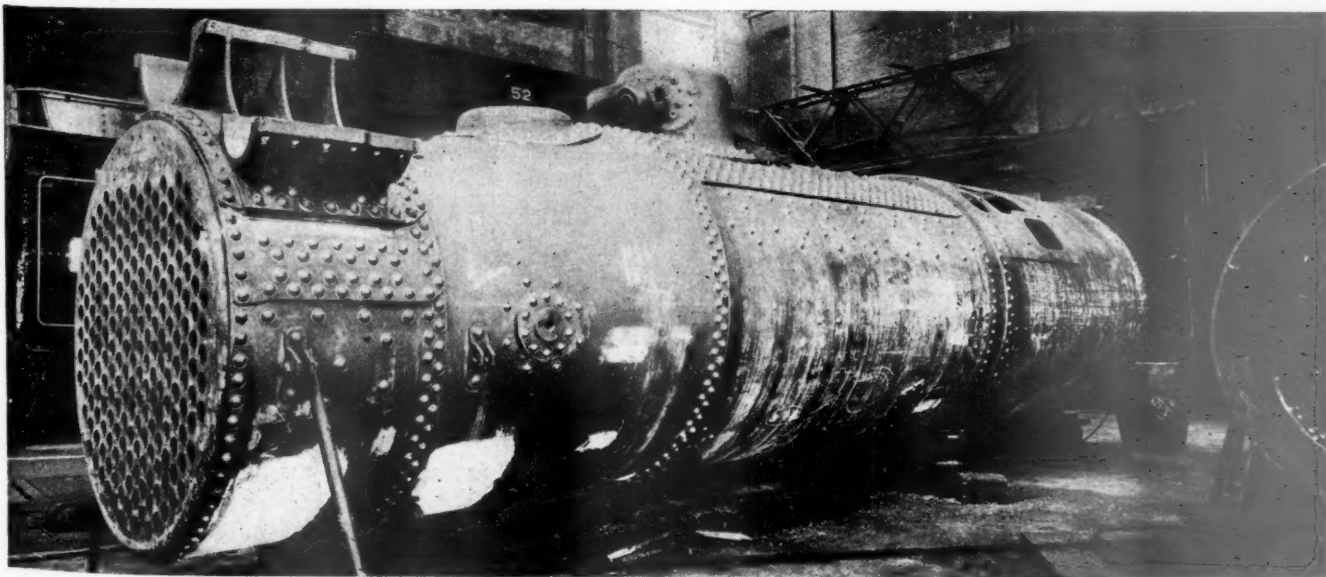
sure, but offers corollary advantages contributing to ease of maintenance.

The system consists of three separate units: The closed circuit, the high-pressure boiler, and the low-pressure boiler.

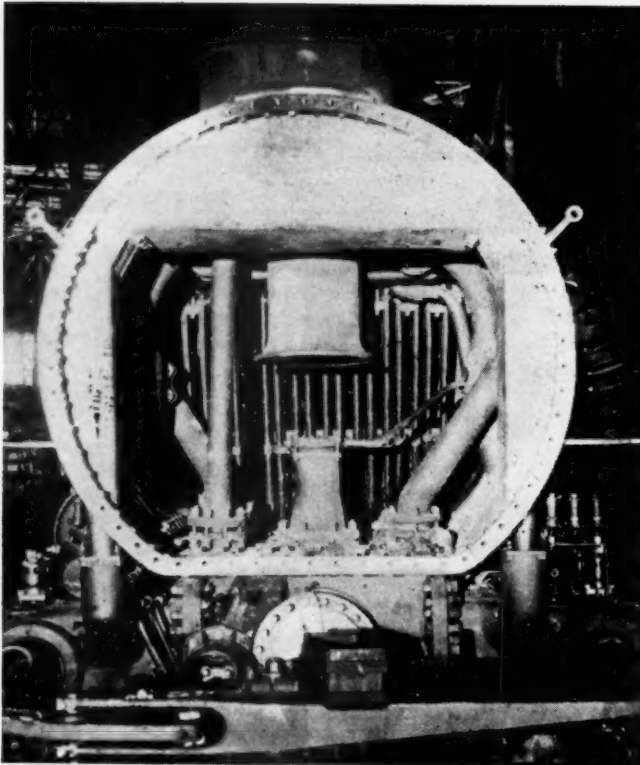
The Closed Circuit:—Referring to the illustration showing the construction of the firebox and closed circuits, the bifurcated seamless steel tubes are 2 in. and 2½ in. outside diameter. The front view shows that the furnace walls are formed by one straight riser tube and one bent crossover tube changing alternately.

The tube ends are rolled into the firebox ring at the bottom and at the top into the steam separator drums. A special feature of the boiler is that the downcomer tubes are not located within the gas path but outside of the wall of riser tubes, thus insuring a positive water circulation without the dangerous reversals of flow encountered on some designs of water-tube boilers. The tube system is filled to approximately the center of the steam separator drums with distilled water, which serves as a heat carrier.

The steam generated is taken from the steam space



Right Side of the Low-Pressure Boiler



Smoke Box of C. P. R. Locomotive No. 8000

of the separator drums and carried by short riser pipes to the heat-transfer elements located in the main steam drum on top of the firebox. During its flow through these elements the steam, by losing its latent heat to the lower-temperature feed water of the high-pressure boiler condenses, thus generating indirectly the high-pressure live steam used in the high-pressure cylinder. The condensate flows out of the lower part of the heat transfer elements through the down-comers or condensate tubes to the water collectors at the bottom of the firebox and combustion chamber. There it again

enters the riser tubes, thus completing the circuit. As distilled water is used and the system is sealed, no scale can be formed in the water tubes which are in contact with the fire.

This is probably the outstanding feature of this design as one of the principal difficulties with water-tube construction in locomotive boilers has been the necessity for careful and frequent cleaning of the tubes to avoid accumulation of scale. This cleaning is a slow and expensive operation requiring the locomotive to be out of service a considerable portion of the time. With the indirect system as used on the No. 8000, the water tubes will never require cleaning. Thus, aside from the time and labor saved, there is the further advantage of avoiding the breaking and remaking of numerous high-pressure joints at the washout plugs, etc.

The flow of water and steam in the system is a natural circulation depending upon the hydraulic head of the liquid and unassisted by mechanical means. There is no fixed steam pressure in the closed circuit but it depends on the steam output of the locomotive. Under normal conditions the boiler carries about 1,350 lb. per sq. in., and under peak loads it may rise to 1,600 lb.

The pressure in the closed circuit is such that the required temperature differential is obtained and the heat flow from the closed-circuit steam to the high-pressure boiler water produces and maintains the 850-lb. pressure in the high-pressure boiler. The two safety valves of the closed circuit are set at a pressure of 1,700 lb. per sq. in., in order that there shall be an adequate range which will preclude the loss of water.

The two illustrations referred to also make clear the arrangement of the high-pressure boiler. The high-pressure steam of 850 lb. per sq. in. is generated in a seamless forged nickel-steel drum 39 in. in inside diameter, which is located above the closed circuit and protected from contact with flames and firebox temperatures by the cross-over tubes of the closed circuit, by a plate of heat-resisting steel and by lagging. The high-pressure steam is generated indirectly by means of the

Comparison of Multi-Pressure Locomotives

Road	C.P.R.	N.Y.C.	P.L.M.	L.M. & S.	G.-St.
Boiler pressures:					
Closed circuit	1300-1700 lb.	1300-1700 lb.	1300-1560 lb.	1300-1700 lb.	1300-1700 lb.
High-pressure boiler	850 lb.	850 lb.	850 lb.	900 lb.	850 lb.
Low-pressure boiler	250 lb.	250 lb.	200 lb.	250 lb.	200 lb.
Firebox:					
Grate area	77 sq. ft.	65 sq. ft.	41.8 sq. ft.	28 sq. ft.	26.6 sq. ft.
Volume	353 cu. ft.	318 cu. ft.	236 cu. ft.	175 cu. ft.	212 cu. ft.
Fuel	Oil	Bit.	Bit.	Coal	Bit.
Heating surfaces:					
Closed circuit	520 sq. ft.	430 sq. ft.	322 sq. ft.	200 sq. ft.	218 sq. ft.
Low-pressure boiler	3,746 sq. ft.	3,229 sq. ft.	1,830 sq. ft.	1,335 sq. ft.	1,370 sq. ft.
Total evaporating	4,266 sq. ft.	3,659 sq. ft.	2,152 sq. ft.	1,535 sq. ft.	1,588 sq. ft.
High-pressure superheater	941 sq. ft.	835 sq. ft.	400 sq. ft.	285 sq. ft.	323 sq. ft.
Low-pressure superheater	1,102 sq. ft.	1,070 sq. ft.	415 sq. ft.	385 sq. ft.	320 sq. ft.
Total superheater	2,043 sq. ft.	1,905 sq. ft.	815 sq. ft.	670 sq. ft.	643 sq. ft.
Total combined	6,309 sq. ft.	5,564 sq. ft.	2,967 sq. ft.	2,205 sq. ft.	2,231 sq. ft.
Heat-transfer coils, inside	750 sq. ft.	660 sq. ft.	460 sq. ft.	295 sq. ft.	315 sq. ft.
Boiler dimensions:					
Low-pressure boiler, inside dia.	82 in.	80 in.	63 3/4 in.	66 3/4 in.	61 3/4 in.
Low-pressure boiler, length over tube sheets	19 ft. 1 3/4 in.	18 ft. 2 1/2 in.	16 ft. 3 in.	13 ft. 2 1/2 in.	13 ft. 10 3/4 in.
Low-pressure boiler, no. of flues	214	194	132	130	116
Low-pressure boiler, diam. of flues	3 1/2 in.	3 1/2 in.	3 1/2 in.	3 in.	3 1/2 in.
High-pressure boiler, inside diam.	39 in.	39 in.	37 3/4 in.	36 in.	36 in.
High-pressure boiler, length overall	25 ft. 2 in.	23 ft. 9 1/2 in.	20 ft. 4 1/2 in.	14 ft. 11 in.	16 ft. 11 in.
Steam separator drums, inside diam.	12 in.	12 in.	10 1/2 in.	10 1/2 in.	11 in.
Combustion chamber drums, inside diam.	7 1/2 in.	7 1/2 in.	3 in.	3 1/2 in.	3 1/2 in.
Closed circuit tubes, outside diam.	2 and 2 1/2 in.	2 and 2 1/2 in.	2 in.	2 in.	3 in.
No. of superheater units—H.P.	49	55	32	24	30
L.P.	61	55	66	32	56
Superheater tubes, outside diam.	1 1/8 in.	1 1/8 in.	1 1/8 in.	1 in.	1 1/8 in.
Water content:					
Closed circuit	2,660 lb.	2,360 lb.	.....	1,250 lb.	1,360 lb.
High-pressure boiler	5,180 lb.	4,665 lb.	4,000 lb.	2,500 lb.	3,150 lb.
Low-pressure boiler	16,500 lb.	16,750 lb.	8,900 lb.	6,775 lb.	7,500 lb.
Ratios:					
Closed circuit heat, sur. ÷ grate area	6.75	6.62	7.7	7.15	8.2
Total evap. sur. ÷ grate area	55.4	56.2	51.4	54.8	59.7
Total heating sur. ÷ grate area	82.0	85.7	70.9	78.8	83.8
Closed circuit heat, sur. ÷ total evap. heat, sur.	12.2	11.3	15.0	13.0	13.7
Heat, trans. coil heat, sur. ÷ closed cir. heat, sur.	1.44	1.61	1.43	1.48	1.45
High-press. sup'h'r. sur. ÷ closed cir. heat, sur.	1.81	2.03	1.24	1.43	1.48
Low-press. sup'h'r. heat, sur. ÷ low-press. heat, sur.	.295	.33	.227	.288	.233

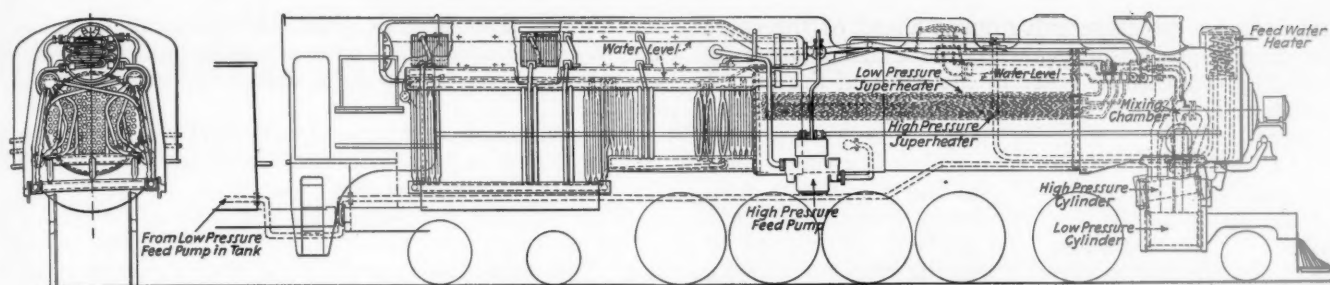


Chart Showing the Steam and Water Flow of the Elesco Boiler as Installed on C. P. R. Locomotive No. 8000

heat-transfer elements in the boiler drum. The average water level in the drum is about 7 in. above the center line, so that from 80 to 90 per cent of the elements are covered by water. The steam flows through two dry pipes located at the highest part of the boiler and perforated at their upper circumference. They emerge as one pipe at the front end of the drum, lead to a shut-off valve and from there to the high-pressure superheater header in the smokebox of the locomotive.

One of the illustrations shows the third part of the system, the low-pressure boiler which carries 250 lb. per sq. in. pressure. It is similar to the barrel part of an ordinary boiler with a circular rear flue sheet riveted to the boiler shell instead of to the firebox. The boiler is fitted with 3 1/2-in. outside diameter flues containing a 1 3/8-in. outside-diameter superheater unit of the Type E design. The units are divided into two groups near the vertical center line, those on the right-hand side comprising the high-pressure superheater and those on the left-hand side forming the low-pressure superheater. Both superheaters are made of the same material and corresponding units have like dimensions. Maximum interchangeability is therefore provided.

Water and Steam Flow in the Boiler

Ordinary feed water is drawn from the tender tank by a standard feed pump, and forced through the exhaust-steam feedwater heater in front of the stack, to the low-pressure boiler which it enters at a temperature of from 200 to 220 deg. F. The low-pressure boiler serves partly as an evaporator for the low-pressure steam and partly as an economizer for the high-pressure boiler.

The high-pressure feedwater is drawn by the high-pressure feed pump from the low-pressure boiler at approximately 250 lb. pressure and 400 deg. F. temperature, and delivered to the high-pressure boiler drum. Besides using the less expensive and lighter heating surfaces of the low-pressure boiler for preheating the high-pressure feedwater, this procedure has the advantage that most of the scaling matter remains in the low-pressure boiler where it can be easily cleaned out. Only a small amount of foreign matter is carried over into the high-pressure drum. Inasmuch as the high-pressure drum is not exposed to flame, any foreign matter which may be deposited in the drums or on the heat transfer elements is of a soft nature and can be readily washed off through the clean-out holes provided along the top of the drum.

The steam generated in the high-pressure boiler at 850 lb. pressure, flows through the outside dry pipe to the superheater header in the smokebox, then through the units of the Type E superheater and through the multiple throttle to the high-pressure cylinder located between the frames underneath the smokebox. Steam from the low-pressure boiler at 250 lb. pressure passes through a tangential dryer and a conventional dry pipe to a low-pressure superheater header in the smokebox.

From there it passes through the low-pressure Type E superheater to the multiple-valve throttle, then to two mixing chambers located in the smokebox.

These mixing chambers are formed by increasing the diameter of each low-pressure steam pipe. The low-pressure live steam is mixed with the high-pressure exhaust steam by means of a perforated nozzle located in this chamber and piped to the high-pressure steam chest. The mixture flows to the two outside low-pressure cylinders. By this means the high-pressure exhaust steam is reheated in a simple manner and the difficult problem of oil separation, so vital for all types of separate reheaters, is avoided. The exhaust from the low-pressure cylinders is utilized in the usual way for drafting the engine and preheating the low-pressure feed water.

The high-pressure and low-pressure superheater headers are of the Type E through-bolt design. They are separate, but cast integral. Each header is fitted with a multiple-valve throttle, the high-pressure and the low-pressure differing only insofar as the high-pressure throttle has valves of considerable smaller diameter on account of the increased pressure and greater density of the high-pressure steam. The two throttle camshafts are linked together in such a manner



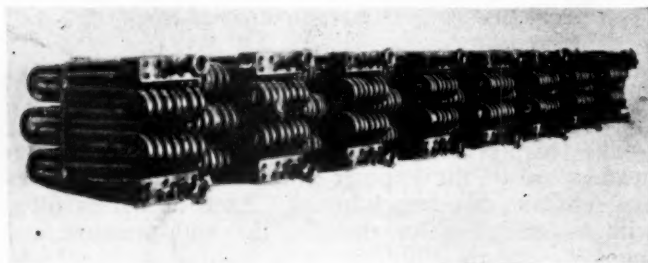
Closed Circuit and High-Pressure Boiler Looking Toward the Rear

that each low-pressure valve opens ahead of the corresponding high-pressure valve. The camshafts are operated by one throttle lever in the cab and the throttle operation is exactly the same as with a normal locomotive.

The boiler heating surfaces and the cylinder sizes and cutoffs are so calculated that full pressure is maintained in both the high-pressure and low-pressure boilers during operation. To prevent opening of the high-pressure safety valves when the throttle is closed, and for accelerating the steaming of the low-pressure boiler at firing up, a crossover line is arranged which allows superheated high-pressure steam to be passed into the low-pressure boiler. Flow of steam through this line is controlled by a cone-seated valve.

Design Provides Many Safety Features

There are three water gages on the boiler. The one for the closed circuit is placed outside of the cab, to be observed only at the beginning and end of each run to ascertain that no water has been lost in service. During the run the system is controlled indirectly by two



Heat-Transfer Elements as Enclosed in the High-Pressure Drum

thermo-couple pyrometers, which show the temperature of the steam and give an indication of the performance of the closed circuit.

Inasmuch as the low-pressure boiler tubes are only in contact with gases of relatively low temperature together with the absence of the crown sheet of the normal type of boiler, the safety of the design is apparent.

The water in the tubes forming the firebox and com-

bustion chamber is scale free. Overheating of tubes due to scale formation, a quite common failure on ordinary high-pressure boilers, is, therefore, entirely eliminated.

An additional safety factor is the relatively low energy stored in the multi-pressure boiler, in spite of the higher steam pressures. All three units together contain only approximately 70 per cent of the B.t.u. found in a normal-pressure locomotive of equal capacity. The separation of the boiler into three units increases the safety still further, as all three units are not likely to be damaged at the same time. In case of a failure of a water tube in the closed circuit due to faulty material or leakage, the energy of the escaping steam will be only about 15 to 20 per cent of that liberated by a corresponding failure on a standard type boiler. As considerable care has been taken to prevent steam from entering the cab in case of a tube rupture, the damage, therefore, will certainly be negligible, compared with a crown-sheet or arch-tube failure, in an ordinary locomotive.

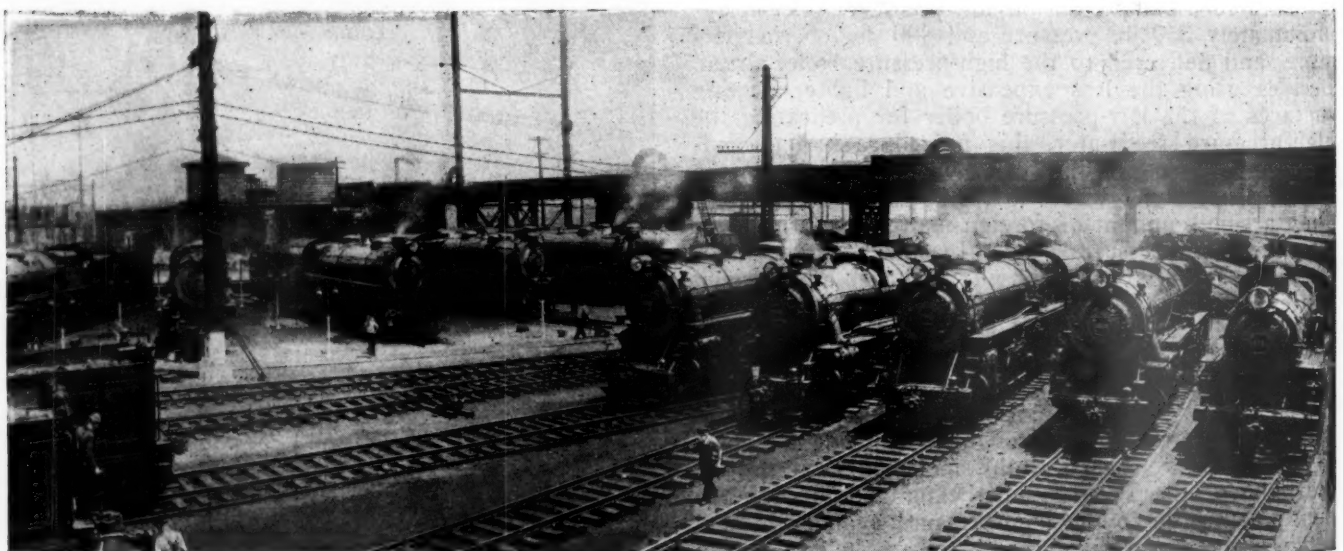
The engine is expected to be more economical than the present type of locomotive. The savings are derived from the higher working capacity of the high-pressure steam which can be generated even at a slightly lower expense of fuel than normal-pressure steam since for 1 lb. of steam at 250-lb. pressure, 1,201 B.t.u. are required, against only 1,195 B.t.u. at 850-lb. pressure. Furthermore, the boiler is designed for steam temperatures at the superheater headers of about 750 deg. F. which also contributes to the increased economy.

One of the tables shows some of the characteristic dimensions of five locomotives of this type. Three of these are for fast passenger service. The New York Central locomotive is designed for fast freight operation and the Canadian Pacific engine is specifically intended for heavy grade work.

The Canadian Pacific locomotive No. 8000 is the largest of the five locomotives which have thus far been constructed, and in which the multi-pressure indirect steam-generating system has been employed.

(Abstracts of the papers presented at the Bigwin meeting by Mr. Ennis and Mr. Bowen will appear in an early issue of the *Railway Age*.—EDITOR.)

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Pennsylvania Locomotives, Worth "A Million Dollars a Dozen," Lined Up for Outgoing Trains at the Temporary Engine Terminal, near West Philadelphia, Pa., During Revision of Locomotive Facilities in Connection with the Pennsylvania's Philadelphia Improvements

Freight Car Loading Increases

WASHINGTON, D. C.
REVENUE freight car loading in the week ended August 13 amounted to 512,431 cars, an increase of 16,398 cars as compared with the week before. This was a decrease of 231,195 cars as compared with the corresponding week of last year and of 410,392 cars as compared with 1930. Increases as compared with the week before were shown as to all classes of commodities, the largest increase being that in miscellaneous freight, which amounted to 6,115 cars more than the loading for the previous week. The summary, as compiled by the Car Service Division of the American Railway Association, follows:

Revenue Freight Car Loading
 Week ended Saturday, August 13, 1932

Districts	1932	1931	1930
Eastern	113,005	160,145	202,065
Allegheny	96,168	144,473	184,296
Pocahontas	34,548	46,149	54,041
Southern	73,004	103,212	120,030
Northwestern	66,845	107,380	152,757
Central Western	85,331	115,595	136,843
Southwestern	43,530	66,672	72,791
Total Western Districts	195,706	289,647	362,391
Total All Roads	512,431	743,626	922,823
Commodities			
Grain and Grain Products	40,886	46,011	62,312
Live Stock	15,758	20,275	21,200
Coal	79,760	112,816	137,668
Coke	2,808	4,623	8,415
Forest Products	15,435	27,732	40,803
Ore	8,051	35,303	57,633
Mdse. L.C.L.	167,835	212,771	234,091
Miscellaneous	181,898	284,095	360,701
August 13	512,431	743,626	922,823
August 6	496,033	734,730	904,157
July 30	510,687	761,818	919,781
July 23	501,130	742,481	919,301
July 16	504,094	757,989	928,271
Cumulative total, 32 weeks	17,053,469	23,523,573	28,727,192

The freight car surplus on July 31 was 763,560 cars, a reduction of 6,071 cars as compared with the number on July 14. The total included 387,448 box cars, 303,600 coal cars, 30,621 stock cars, and 13,793 refrigerator cars.

Car Loading in Canada

Car loadings in Canada for the week ended August 13 amounted to 39,050 cars as against 35,235 cars for the previous week. The holiday on August 1 affected the loadings of the previous week but after adjustment the index number rose from 61.18 to 65.47.

Grain loading in the Western Division was particularly heavy, amounting to 4,957 cars which is comparable with 2,545 cars for the previous week and 2,302 cars for the corresponding week last year. Total loadings in the Western Division amounted to 14,782 cars which was an increase of 2,764 cars over the previous week's loading and 1,190 cars over the total for the thirty-second week last year. The index number was 81.98 as against 66.76 for the previous week. Merchandise loading increased from 12,009 cars for the previous week to 13,261 cars and the index number rose from 74.51 to 77.84.

	Total Cars Loaded	Total Cars Rec'd from Connections
Total for Canada		
Aug. 13, 1932	39,050	15,432
Aug. 6, 1932	35,235	16,675
July 30, 1932	36,548	15,703
July 8, 1931	44,995	22,075
Cumulative Totals for Canada		
Aug. 13, 1932	1,299,527	622,698
Aug. 8, 1931	1,536,460	847,480
Aug. 9, 1930	1,886,720	1,091,730

Atlantic Coast Line Employees' Fine Record

FOR two years in succession the employees of the Atlantic Coast Line have made the remarkable record of less than two casualties to employees per million man-hours worked—the percentage having been reduced from 26.95 in 1923 to 1.66 in 1930 and 1.10 in 1931; and the National Safety News for August, in a discriminating article on this road's safety organization, by the editor, C. T. Fish, gives special credit to the ingenious and varied methods of the officers of that department in keeping up the interest of operating officers and employees in the general effort to achieve a perfect record.

An example of these activities is the series of monthly posters, printed in vivid green, one of which is copied on a small scale herewith. The idea of "Vision" is impressed on the observer in a way to make it remem-



bered. The Safety department, says the "News," does not simply supervise officers and foremen, and manage committees; it develops very effectively the faculty of attention and watchfulness, and the power to foresee conditions that may produce accidents, so-called. An invitation to send in recommendations for improvement of methods, apparatus or conditions, has been before the employees of the Atlantic Coast Line for several years and more than 26,000 of these suggestions have been approved.

The general plan of the department calls for the establishment of a safety committee wherever as many as a dozen employees are at work. Robert Scott, the director is one who forms his purposes long in advance; and not the least of the influences which have produced the present satisfactory situation is the series of annual meetings of committee chairmen and secretaries which have been held each year for more than 10 years. District and local committees often take action to interest citizens generally, and hold meetings in town halls and school houses, discussing public safety as well as railroad conditions.

The Atlantic Coast Line has no elaborate code of safety rules; the safety specialists center their efforts on the long-standing precepts of the standard book of rules. In a dozen years the road has used more than 100,000 copies of the posters and other literature furnished by the National Safety Council.

A feature of the practice which frequently brings newspaper notice is the printed or typewritten letter which locomotive engineers throw off at crossings when they note an automobilist who by waiting at a crossing for the train to pass, gives evidence of his purpose to obey the reasonable rules of safety which should govern at crossings.

Motor Transport Section

Railway Express Agency Begins Highway Freight Service

Opens two routes, Chicago-Milwaukee, Wis., and Chicago-South Bend, Ind.—Operating through subsidiary, Railway Express Motor Transport, Inc.

THE long anticipated entry of the Railway Express Agency into the field of transportation of freight by motor truck over the highway has taken place. Operating through a subsidiary known as the Railway Express Motor Transport, Inc., two truck routes were established on August 22, one between Chicago and Milwaukee, Wis., and the other between Chicago and South Bend, Ind. Generally speaking, the rates in effect are less than one-half the present express rates between the same points. The rates are somewhat higher than the railroad rates in effect on the same commodities, but they include free delivery within the corporate limits of the cities served. There is an extra charge for pick-up service. For the present at least, only interstate traffic will be handled since the Railway Express Motor Transport has no certificates for intra-state operation.

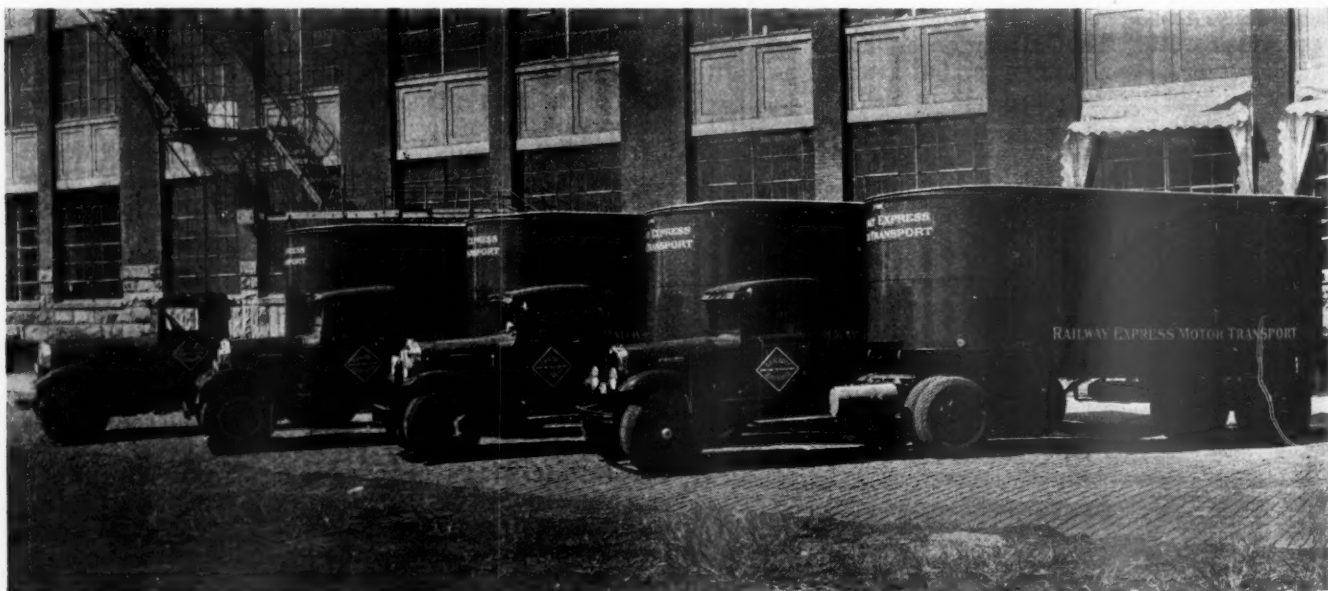
Over-the-Road Service Long Advocated

The operation of trucks by the Railway Express Agency in over-the-road service has been advocated from time to time for a number of years. This recom-

mendation has been voiced with greater frequency during recent years when it has been stated that this type of service, operated by a company owned by all the railways, would be an effective railway answer to truck competition. It has been said that the operation of trucks by the Railway Express Agency on a national scale would be more advantageous than the provision of such service by railways individually, since it would avoid the cost to each railway of purchasing and operating its own fleet of trucks and since it would avoid further disruption of the transportation industry by preventing the upset of the existing relationships between communities and industries. The most outspoken advocate of the extension of the service of the Railway Express Agency has been Fred W. Sargent, president of the Chicago & North Western. In a discussion of the competitive situation and of the possibilities of truck transportation, he said in his annual report for 1931:

The railroads should utilize the Railway Express Agency for the following:

- (1) To handle all l.c.l. freight.
- (2) To operate trucks on public highways where same is in-



Four Tractor and Semi-Trailer Units Comprise the Highway Equipment of Railway Express Motor Transport

licated as being more efficient and economical than the use of the railroads.

(3) To handle all express and l.c.l. freight and, in some instances, carload freight, in the transfer business in large cities and terminals.

Agency Operates 9,000 Vehicles

It may or may not be significant that one of the first truck routes established by the Railway Express Agency parallels the main line of the Chicago & North Western between Chicago and Milwaukee. The express agency has been studying the possibilities of highway trucking for several years. It is one of the four largest operators of motor trucks in the United States, having more than 9,000 motor vehicles in use for the pick-up and delivery of its express business. The new service is looked upon as an experiment by the management of the express agency and the results of the experiment will constitute a guide upon which to base plans for further extension of the highway freight service.

Territory Highly Competitive

The management recognizes that, in opening its Chicago-Milwaukee and Chicago-South Bend routes, it is entering two of the most highly competitive territories in the United States. To some extent between Chicago and South Bend, but especially between Chicago and Milwaukee, more different types of transportation service are available to shippers than between any other two cities of the country. Three steam railways, a high-speed electric railway, and lake steamship lines serve the Chicago-Milwaukee territory. The steam railways are the Chicago & North Western, the Chicago, Milwaukee, St. Paul & Pacific and the Minneapolis, St. Paul & Sault Ste. Marie, and the electric railway is the Chicago, North Shore & Milwaukee. In addition, there is intensive truck competition not only by carriers holding certificates for intrastate operation but more by those which operate interstate service exclusively. Between Chicago and Milwaukee, there is not only the ordinary railway and lake service and truck service by highway, but also such specialized forms of transportation as those offered by the North Shore Line with its ferry-truck service, by which trucks and semi-trailers are handled intact on freight cars, and the compartment freight car service of the North Western. The management of the express agency feels that on the two routes it has selected for its experiment, it is



Truck Routes of Railway Express Motor Transport, and Adjacent Railway Lines

facing conditions which will give its plans the hardest possible test.

Routes Served

Each of the two routes which have been established is approximately 97 miles in length. Intermediate points served on the route between Chicago and South Bend are Hammond, Ind., Michigan City and Gary. On the other route, the intermediate points served are Evanston, Ill., Waukegan, Kenosha, Wis., and Racine. In the intercity service, tractors and semi-trailers are utilized, these operating on regular daily schedules. Deliveries are accomplished from stations of the Railway Express Agency by the fleet of trucks which it has at each point for the pick-up and delivery of its ordinary express business. Shipments upon which pick-up service is not given are received at any of the stations of the Railway Express Agency in each city or town. Where pick-up service is rendered, the express trucks of the express agency are utilized to move the freight from the door of the shipper to the principal receiving

Schedules of Tractors and Trailers

Chicago-Milwaukee

(Read Down)		Miles			(Read Up)	
Dep.	Arr.				Dep.	Arr.
Dep. 1:30 a.m.	Dep. 7:30 p.m.	...	Chicago	.....	Arr. 12:30 a.m.	Arr. 5:30 a.m.
	Arr. 8:11 p.m.		Evanston, Ill.	.....	Dep. 11:50 p.m.	
	Dep. 8:26 p.m.	12.4			Arr. 11:33 p.m.	
	Arr. 9:26 p.m.		Waukegan, Ill.	.....	Dep. 10:33 p.m.	
	Dep. 9:46 p.m.	43.2			Arr. 10:13 p.m.	
	Arr. 10:22 p.m.		Kenosha, Wis.	.....	Dep. 9:37 p.m.	
	Dep. 10:42 p.m.	60.4			Arr. 9:17 p.m.	
	Arr. 11:09 p.m.		Racine, Wis.	.....	Dep. 8:50 p.m.	
	Dep. 11:30 p.m.	71.7	Milwaukee, Wis.	.....	Arr. 8:30 p.m.	
Arr. 5:30 a.m.	Arr. 12:30 a.m.	97.6			Dep. 7:30 p.m.	Dep. 1:30 a.m.

Chicago-South Bend

Dep. 7:30 p.m.	So. Bend, Ind.	.....	Arr. 5:00 a.m.
Arr. 8:45 p.m.			Dep. 3:45 a.m.
Dep. 9:05 p.m.	Mich. City, Ind.	.....	Arr. 3:25 a.m.
Arr. 9:52 p.m.			Dep. 2:40 a.m.
Dep. 10:12 p.m.	Gary, Ind.	.....	Arr. 2:30 a.m.
Arr. 10:35 p.m.			Dep. 2:10 a.m.
Dep. 10:55 p.m.	Hammond, Ind.	.....	Arr. 1:55 a.m.
Arr. 12:00 p.m.	Chicago	.....	Dep. 1:00 a.m.

station of the motor transport subsidiary. These trucks likewise take care of the movements to the outbound station from the various receiving stations of the express agency. The terminal truck service is performed for the motor transport subsidiary by the Railway Express Agency under a contract, the only equipment owned by the motor transport subsidiary being the tractors and semi-trailers which are used to provide the intercity service.

Method of Operation

The schedules upon which the tractors and trailers are operated are shown in the accompanying table. These schedules call for the regular daily use of three tractors and three semi-trailers, with one tractor and one semi-trailer in reserve. Two tractor and semi-trailer units are assigned to the Chicago-Milwaukee route, and one to the Chicago-South Bend service. One of the tractors and semi-trailers leaves the North Western express terminal of the express agency in Chicago at 7:30 p.m. for Milwaukee, where it arrives at 12:30 a.m. after making local stops at Evanston, Waukegan, Kenosha, and Racine. This unit is then unloaded and re-loaded with through freight for Chicago, leaving Milwaukee at 1:30 a.m. and arriving at Chicago at 5:30

to South Bend and intermediate points. It returns to its South Bend station at 5 a.m. It will be seen that these schedules allow ample time for the late pick up of freight and for early morning delivery, well before the opening of business.

Tariff Rules

Under the rules in effect, virtually all classes of merchandise, except livestock and shipments of such unusual bulk or weight that they cannot be conveniently handled in motor trucks, are accepted for transportation. The principal exceptions are airplanes, automobiles, crated household goods, livestock, moving picture films, Oriental rugs, paintings, bulky freight, currency or valuable papers, explosives and inflammable articles, and articles in one piece or package in excess of 17 ft. 6 in. in length, 6 ft. 3 in. in height or 6 ft. 11 in. in width. Perishable products are accepted only at the owner's risk of damage resulting from frost conditions. The company's regular form of receipt is required to be given for all shipments received. C. O. D. shipments are accepted only at the company's option. The charges for collecting and remitting are made at the rate of one-half of one per cent, with a minimum charge of 17 cents. Shipments are required to be marked

Table of Rates

Rates in Cents per 100 Lb.

BETWEEN	CHICAGO Class			EVANSTON, -- ILL. Class			WAUKEGAN, ILL. Class			KENOSHA, WIS. Class			RACINE, WIS. Class			MILWAUKEE, WIS. Class		
	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
Chicago .....	..	..	..	..	..	..	..	..	..	50	42	35	53	45	37	58	50	41
Evanston, Ill. ....	..	..	..	..	..	..	..	..	..	44	37	31	47	41	33	56	47	40
Waukegan, Ill. ....	..	..	..	..	..	..	..	..	..	37	32	26	41	34	29	47	41	33
Gary, Ind.	41	34	29	43	36	30	44	37	31	50	42	35	53	45	37	58	50	41
Hammond, Ind.	37	32	26	43	36	30	44	37	31	50	42	35	53	45	37	58	50	41
Michigan City, Ind.	50	42	35	53	45	37	59	51	42	64	54	45	66	56	46	70	59	50
South Bend, Ind.	59	51	42	62	53	43	68	58	48	70	59	50	73	62	51	77	66	54

a.m. The other tractor and trailer unit leaves the platform of the express agency at the North Western depot in Milwaukee at 7:30 p.m., and after making local stops, arrives at Chicago at 12:30 a.m. In Chicago the trailer is unloaded and reloaded with Milwaukee freight and a through run to Milwaukee is made with departure from Chicago at 1:30 a.m. and arrival at Milwaukee at 5:30 a.m. The plan of operation on this route enables each tractor and trailer unit to cover approximately 195 miles daily.

For the purpose of operating convenience, shipments are divided according to their destinations and business for intermediate points is handled on the early evening schedules, with through business handled on the late schedules. The early evening schedules likewise pick up freight at intermediate points for delivery to points beyond. Although the late schedules are designed particularly for through business between Chicago and Milwaukee, these can also handle traffic to intermediate points when this is necessary.)

Late Pick-Up Provided For

Only one round trip daily is scheduled between Chicago and South Bend. On this route the tractor and trailer unit assigned to South Bend leaves that point at 7:30 p.m., and arrives at Chicago at midnight, after stopping at Michigan City, Gary and Hammond. The semi-trailer is unloaded in Chicago upon its arrival and is then re-loaded with freight from Chicago, consigned

plainly and to be packed so as to insure safe transportation with ordinary care on the part of the carrier.

With respect to pick-up and delivery service, the rules provide that shipments will be received and delivered at the ground floor of any residence, store or warehouse door of shippers or consignees if it is accessible to trucks. The shipper and consignee are required to provide proper facilities and assistance in loading and unloading shipments of excessive weight. The rates in effect include delivery to the address of the consignee if it is within the corporate limits of the city of destination. Pick-up service within the corporate limits of the point of origin is provided at an additional charge of 10 cents per 100 lb., with a minimum charge of 50 cents per shipment, the only exception being that shipments weighing 1,000 lb. or more are picked up without additional charge. In no case does the total charge including pick-up service for less than 1,000 lb., exceed the charge for 1,000 lb.

Charges for Undue Delay of Vehicles

Charges are assessed for undue delay to vehicles in loading or unloading. On shipments which the company carries, charges directly incidental to their further transportation by connecting railway, express, boat or truck lines or storage warehouses may be advanced by the company, but only when in the estimation of the agent the shipment is worth in excess of the transportation and other charges at forced sale. It is required

that charges advanced be guaranteed by the party to whom the advance is made.

If a shipment is tendered for delivery and the delivery cannot be accomplished, through no fault of the carrier, no further delivery is made except upon request, and then only for an additional charge of 10 cents per 100 lb. for each such attempt at delivery. If for any reason shipments remain undelivered, notice is promptly sent to the consignee or to the consignor, if known. Forty-eight hours free storage is allowed, which is computed from the first 7 a.m. after the day on which the notice of arrival is sent to the consignee. Shipments held on the premises of the carrier after the expiration of the free time are subject to storage charges.

Rates Charged

The rates in effect for transportation by the motor transport company are shown in the accompanying tabulation.

Among the commodities rated first-class are computing machines, agricultural implements, bottles, books, cameras, cans, carpets and rugs, cash registers, chemicals, clothing, desks, dry goods, new furniture, toys, glassware, lamps, musical instruments, radios, sewing machines and so on. Third-class rates apply on such commodities as alcohol, batteries, canned goods, cement, feed, fertilizers, flour, iron and steel articles, lime, oil, pipe, paint, roofing, salt, soap, sugar, varnish, and so on. Second-class rates apply to all articles not listed in the first-class and third-class group, nor in the list of articles not accepted for shipment. A separate set of charges is provided for the return of empty containers of various kinds.

Special Rates and Minimum Charges

The minimum charge on any single shipment where no pick-up service is performed is \$1, and the minimum charge on any single shipment where pick-up service is performed is \$1.50. Special rates are quoted upon application for truck or trailer loads with a minimum weight of 20,000 lb. The rates quoted in the tariff do not apply on light bulky shipments weighing less than 10 lb. per cu. ft. Rates for such traffic are quoted upon application.

The equipment of the Railway Express Motor Transport, Inc. consists of four tractors and four 7½-ton semi-trailers. The tractors include one Diamond T, one International, one Pierce-Arrow and one White. The semi-trailers have Lapeer chasses and round-front, closed bodies manufactured by H. McFarlane & Co., Chicago. The semi-trailers have aluminum bodies and doors for end loading. The bodies are 20 ft. in length and 8 ft. wide, and the length of the tractor and trailer combination overall is 32 ft.

The operations of Railway Express Motor Trans-

port are supervised by L. O. Head, vice-president in charge of the Western department of the Railway Express Agency, who is also vice-president of the motor transport subsidiary. Other officers of the express agency likewise hold similar positions in the organization of the highway trucking subsidiary.

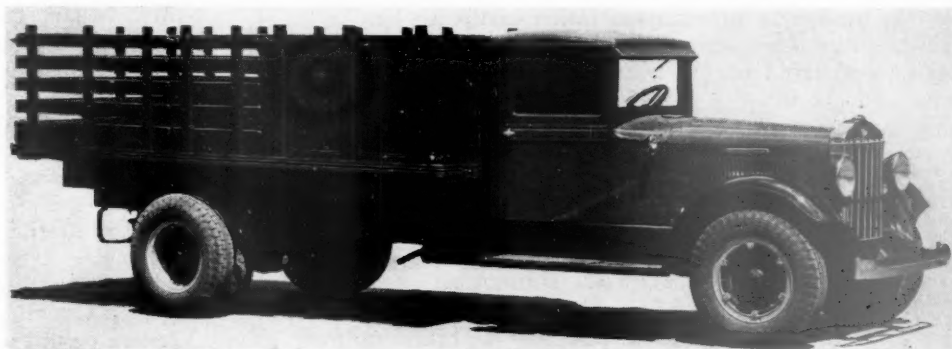
Reo Adds Two-Ton and Four-Ton Trucks

THE Reo Motor Car Company, Lansing, Mich., has placed on the market a new 6-cylinder, 2-ton truck and an 8-cylinder, 4-ton truck. While the conventional rating is employed for purposes of classification, the trucks will be marketed under the new Reo "Ability Rating" plan. Under this system, the 2-ton truck is rated "11,000-4¼-47," which means that it will haul a gross load of 11,000 lb. over a 4¼ per cent grade in direct drive, and will travel over hard-level roads at 47 miles an hour at an engine speed of 2,800 r.p.m. The 4-ton truck is rated on this basis at "20,000-3¼-43."

The 8-cylinder engine of the 4-ton truck has a piston displacement of 358 cu. in., and develops 110 hp. at 2,800 r.p.m. The maximum torque of 230-ft. lb. is reached between 1,600 and 2,100 r.p.m. The engine block is of chrome-nickel alloy and the pistons are aluminum. The crankshaft has 9 large main bearings and the truck is equipped with an "Electro-Vac" governor. Other features of the 4-ton truck are the 4-speed transmission, the gears of which, like those of the full-floating axle, are of nicked molybdenum steel; a cam and lever steering wheel, and 4-wheel internal expanding hydraulic brakes equipped with a vacuum booster. The 4-ton truck is supplied in a number of wheelbases, ranging upward from 150 in. A magazine pipe oiler is standard equipment.

In addition to the standard 4-ton truck there is a special model with a 5-speed transmission, double reduction axle and full air brakes. The "ability rating" on this truck is "20,000-3¼-38." The standard 4-ton tractor unit is rated "32,000-1½-43," and the special tractor, "32,000-2-36."

The 2-ton truck is available in wheelbases ranging upward from 142 in. As in the case of the 4-ton truck, dual rear tires are standard equipment. The 6-cylinder engine develops 75 hp. at 2,800 r.p.m. The engine has a chrome-nickel block and aluminum pistons. Other features of the truck are the 4-speed transmission, the full-floating rear axle with spiral bevel final drive, the cam and lever steering gear, the hydraulic internal expanding 4-wheel brakes, the channel type frame, and the semi-elliptic helper springs over the axle.



The New Reo 8-Cylinder, 4-Ton Truck

Store-Door Service Brings More Traffic Increases

THE provision of store-door pick-up and delivery service for l.c.l. freight is continuing to bring increases in traffic to the Missouri-Kansas-Texas. On the lines in Texas where its subsidiary, the M-K-T Transportation Company, is operating a steadily increasing volume of l.c.l. freight has been handled this year. In each of the first six months of the current year, the volume of business handled by the transportation company exceeded that handled in the same months of 1931. The increases ranged from 106,213 lb. of l.c.l. freight in January, 1932, as compared to January, 1931, to 1,486,782 lb. in June of this year, as compared to June of last year. The gain in the transportation company's tonnage during June, incidentally, almost offset the loss of outbound business suffered by the Katy, due to general business conditions.

The M-K-T Transportation Company was organized in July, 1930, to perform store-door pick-up and delivery service for the Katy lines in Texas. The transportation company has no operating equipment of its own, in spite of the fact that it handles l.c.l. freight on its own bills of lading. To provide for the transportation of shipments it receives, it contracts with the railway for station-to-station service and contracts with local drayage companies for pick-up and delivery service by motor truck in the towns served. The transportation company's freight is handled in regularly scheduled merchandise cars of the railway, and the service is so arranged that the freight is picked up at the door of the shipper late in the day, moved by truck to the railroad station where it is loaded into a merchandise car, moved overnight by train to the point of destination, and delivered early in the morning by motor truck to the door of the consignee.

Originally, the transportation company offered its services at only 27 of the larger and more important stations of the Katy in Texas. Subsequently, however, the service was expanded until, by the beginning of 1931, the transportation company's operations covered all of the M-K-T lines in Texas, with the exception of the Texas Central and the Mineola branch. Now these lines, too, are served.

The transportation company has enjoyed a generally increasing volume of business since its organization. While a certain amount of this is traffic which would have moved via the railway, the greater proportion has been diverted entirely from competitive motor trucks. It has been estimated that approximately 70 per cent of the transportation company's business is traffic recovered from competitive highway lines.

Traffic Sets Records

The traffic of the transportation company has been setting new high records each month this year. The gains registered by the transportation company during the first six months of 1932 are shown in the following tabulation of l.c.l. merchandise billed outbound:

	1932	1931	Increase
January	3,641,637 lb.	3,535,424 lb.	106,213 lb.
February	3,433,034 lb.	3,041,483 lb.	391,551 lb.
March	4,011,665 lb.	3,031,229 lb.	980,436 lb.
April	4,270,143 lb.	3,134,351 lb.	1,135,792 lb.
May	4,380,035 lb.	2,995,959 lb.	1,384,076 lb.
June	4,564,162 lb.	3,077,380 lb.	1,486,782 lb.
Total	24,300,676 lb.	18,815,826 lb.	5,484,850 lb.

The combined total of outbound shipments handled by both the transportation company and the railway during June was 7,731,097 lb., as compared to a com-

bined total of 7,858,446 lb. in June, 1931. However, in June, 1931, the railroad company itself handled 4,791,066 lb. of outbound l.c.l. freight, while the transportation company handled only 3,077,380 lb. In June of this year, the figures were almost exactly reversed, 4,564,162 lb. having moved by the transportation company and only 3,166,935 lb. by the railway.

The revenues of the transportation company during the first six months of this year have likewise shown increases over the same months of last year. Increases occurred each month except January, ranging from \$1,918.03, in February to \$5,389.06 in April. The revenue increases in May and June did not quite keep pace with the tonnage increases, but for the six months' period, the increase in revenues of the transportation company aggregated almost \$20,000.

Cites Reasons for Traffic Increase

A number of reasons for the increased business are cited by L. M. Stuart, traffic manager of the transportation company. "The intensive efforts of our freight traffic solicitors and local agents, together with an almost perfect performance in our fast freight service, with early morning deliveries, set-out cars to all towns of consequence, and unexcelled service with a minimum of handling of freight, are responsible for the gains," according to Mr. Stuart. "Also, the assistance given by some of our draymen has been an important factor, while another factor has been the grocery mixture rate which has brought greatly increased business from wholesale grocers."

The efforts toward traffic solicitation made by the draying contractors of the transportation company have been most successful. The contractors at Houston, Tex., Austin, Waco and Dallas, have been particularly active in soliciting traffic for the transportation company. "Their drivers are always on the alert to pick up business or information on routing," says Mr. Stuart. "In some cases, the draying contractors have solicitors on the street; in other cases, our contractors and their men have attended our solicitation meetings and taken an active part in them. One of our contractors furnishes me with a complete list each morning of tips his men have been able to obtain during the previous day. This information is immediately sent out to all interested traffic officers, enabling our solicitors to work on this new business. One aggressive drayage contractor asked for and has been furnished a chart of the railroad showing the location of each station, which he has posted in a convenient place, so that his drivers may familiarize themselves with the location and best means of approach to each station."

The provision of pick-up and delivery service is credited by Mr. Stuart with the retention of a considerable amount of freight traffic which otherwise would have been lost. "Without the pick-up and delivery service, now extended to all parts of our Texas lines," Mr. Stuart concludes, "our company unquestionably would have suffered far more than it has from the protracted business depression."

THE TRAVEL AND TRANSPORT BUILDING of the Chicago World's Fair of 1933 will be formally dedicated on September 15, with appropriate ceremonies. The dedication will be under the auspices of the Traffic Club of Chicago and the Associated Traffic Clubs of America, and the ceremonies will be participated in by railway executives and leaders of other phases of transportation. The dedication will take place at 3:30 p.m. with the Illinois Central chorus and the band of the Chicago & North Western participating. It will be followed by a dinner at the administration building.

Communications and Books...

Training for Ticket Clerks

TO THE EDITOR:

CHICAGO.

Criticism of railway ticket offices has been so extensive that it seems strange the passenger traffic officers have not taken it seriously, in the interests of the railway companies. If any have done so, they appear to be exceptions that prove the rule. As to the letter of "N. E." (*Railway Age*, July 2, page 22), my experience is that consolidated offices are not the only ones at fault, and that the objectionable manners are not confined to holiday periods.

My "constructive criticism" would differ a little from that of "N. E." The extra clerk might be a little help at busy times, but not much help if his mental attitude was the same as that of the regular clerks. And he would not alter the inattentive behavior on ordinary days. To me, the situation seems to be directly up to the office management. There is, or certainly should be, a head clerk or manager whose authority and responsibility should include supervision of the counter clerks and cashiers. In many cases, no such official is in evidence. But, more important, these clerks should have training and instruction as to behavior in dealing with the public. Theatre ushers and hotel bell-boys are trained in this way, in the interests of the theatres and hotels. Why not ticket clerks in the same way, in the interests of the railways?

T-R.

Railway Tears Won't Wash Away Depression

HOLLYWOOD, CAL.

TO THE EDITOR:

What a complete picture we would have if only our friend Andy, of Amos and Andy of radio fame, would join the rail forces and add his sigh "Oh, me!" to the sighs of perhaps some million railroad men. Honestly, a person is inclined to get just a wee bit weary of hearing and seeing day after day the sad and perhaps fatal plight of our railroads as broadcast by the forces of the industry in general.

To see and hear all this one would think that every other line of business was a perfect bed of roses. A glance at a few figures will show us one thing—that the railroad business is far from being at the bottom of the list (so far as volume is concerned). Car loadings in the second quarter of 1932 were off 30.3 per cent from those of 1931, but only off one-half from the record year of 1929. And factory payrolls in June—a pretty good indication—were off 38.4 per cent from the same month last year! Our cement, lumber, steel and other basic industries would feel as though things were not so bad if they could present such figures. But do they present a picture of a "has been?" Hardly! Undoubtedly, much of this sad news is intended for legislative note so far as the railroads are concerned. However, looking into the future, how many thousands of investors are going to recall these little items of the "blues" and stay clear of railroad securities? A great many, I would say.

If such items could only be turned into, let us say, "constructive" notes to tell the public of various improvements in the railroad field how much better it would be. Then the railroads would be getting down to real merchandising! Let the roads, individually or collectively, put on an honest to goodness and attractive advertising program that will attract interest and not just a few week-end excursionists. Put on a show once a year if need be, but do something. Break the old "999" speed record and tell the news syndicates about it. The transportation editor of a nationally-known newspaper once said that he was almost flooded with "news" from various steamship and air-line traffic officers, but that he almost had to dig for notes concerning the railroads. What an attitude that

is when compared with some of our tobacco firms selling a fifteen cent cigarette. I doubt if anyone really appreciates a lot of this "ballyboo" and "hokey" but, if it gets the business, then use it. A word might be said here in commendation of the various Pullman exhibits which seem to be leading the way in creating favorable comment.

One thing more—this thing of "new blood." What is being done to make railroading an attractive field for a young man? One young man I recall, the possessor of a good education, widely traveled and well known in his community, thought of entering the traffic department of some road. He made the rounds, calling on various traffic officers and found, as a whole, they were a pretty skeptical lot (and this was before the salary slashes, too). One said he would prefer a son of his having a "popcorn stand" on the corner. Another even went so far as to have a truck line officer get in touch with the boy and offer him a position. Incidentally, this truck line was operating in the same territory and competing for the business of the road represented by the railway officer in question. Now, it is a pretty sad state of affairs when men representing an industry such as the railroad turn to advertise their business in such fashion. It would not be fair to say that anywhere nearly all are of such a type, but how many hundred others are?

Some three years ago while traveling on a local passenger train in Illinois the writer recalls a conversation with the conductor. Paralleling the track for some distance was a new highway. An independent bus went by and the conductor went to considerable trouble to make himself seen by the bus driver, later remarking that the bus line was owned by him and his brother. That's gall!

Why not start taking a little more cheerful aspect on the situation even if it is a little more or less forced? If Andy had gone in the railroad business he undoubtedly would have heaved his last "Oh, me!" by this time with all the pessimists he would have come in contact with.

JOHN W. COOPER.

Offer Better Passenger Service and Meet Competitors' Prices

DALLAS, TEXAS.

TO THE EDITOR:

I have been reading a lot about the loss of passenger traffic by the railroads, and wonder why the railroads don't adopt a more aggressive policy towards regaining some of this traffic.

It is true a few roads are improving their passenger service by adopting air conditioning and otherwise making travel more agreeable for the passenger. This, however, is not going to solve the problem altogether, it is the pocket-book that generally decides which mode of transportation the prospective traveler will use.

Why not give the class system, first, second and third, or at least first and second, as used in Europe, an extended trial?

I have seen trains of eight and ten cars with only enough passengers to fill one or, at most, two cars. Since these cars are being hauled why not try and get someone to ride in them? They would if the price were right, say 3.6 cents per mile first class and two cents per mile second class. People don't ride in buses because they prefer them to trains; as I said before, it is the pocket-book that decides.

I shall stress some of the inconsistencies of railroad travel from the passenger's point of view. One pays 3.6 cents a mile to ride on a first-class train and yet when he gets on a mixed train on some branch line, he still has to pay the 3.6 cents a mile for the doubtful privilege of being jerked round at the end of a string of box cars. At least one road which I have in mind charges only 1.75 cents a mile on up-to-date trains, but collects the standard 3.6 cents a mile on mixed trains in branch line service.

In numerous instances the highways parallel the railroads,

running through the same towns and cities. To compete for the traffic of these areas why should not the railways buy three or four buses for the same expenditure of capital and the same total weight as one rail motor car? These buses could be modified sufficiently to permit their operation on the rails and they would provide a service comparable with existing bus services at the same or lower fares, with a comfort and reliability that the highway bus cannot hope to equal, especially in bad weather. I don't think there is any question as to which mode of transportation the public would use. Railroads already have the rights-of-way—they should make use of them.

One objection that will probably be raised to this plan of operating buses on the rails, is that each bus will require two men to operate it, a condition which will no doubt depend on state laws. I believe, however, that the difference in the cost of fuel and repairs between a bus running on rails and one running on the road, together with the elimination of tires, which is no small item, will nearly offset the cost of the additional man, provided two are required.

I believe there are districts on every large railroad where the above system of transportation combined with an aggressive advertising policy, will make money for the road adopting it. Times have changed; the public wants cheap, fast and reliable transportation coupled with comfort, and who is better able to furnish it than the railroads? Certainly not the buses.

The quickest way to get rid of a competition is to sell a better article for the same price. Instead of waiting for legislation to control competitors, put them out of the picture by adopting new methods and selling transportation. It can be done! The function of the bus should be that of a feeder, not a competitor.

P. D. ANDERSON.

Use Part of R. F. C. Loan for Rail-Motor Co-ordination

PITTSBURGH, PA.

TO THE EDITOR:

The writer has often wondered why the railroads have allowed motor truck competition to be surrounded with such an apparently unpenetrable "veil of mystery or romance." Motor transport is not new to the railroads, they own the Railway Express Agency with a fleet of 9,247 trucks, and scattered among the railways of the country are 10,000 trucks, not to mention the 5,000 motor buses operated by them.

The railroads in practically every territory served have priority transportation franchise rights by virtue of their rights-of-way, well do their capable legal advisors know; and these rights-of-way have been evaluated in most cases by now, after 19 years, by the Interstate Commerce Commission. This commission which makes its decisions "in the interests of the public," often in refusing to grant some of the requests made by the railroads, should realize that every "certificate of convenience and necessity" granted by a state government for a motor freight common carrier, or the right of a contract carrier to operate at large over a state, is helping to build a "boomerang" that will have to be dealt with, within the next ten years. This will be expensive to the public and government, as well as the railroads.

The Interstate Commerce Commission and the railroads will find that the restrictive motor transport legislation now being passed by many states, promoted in some cases no doubt by the railroads as a defense against motor truck competition, will also preclude economical interstate as well as "pick up and delivery" motor truck operation—both of which will ultimately have to be done by the railroads as a part of their transportation business "in the interests of the public," and to secure a greater net return on the whole railway plant investment.

According to the current press, the railroads seem to question the feasibility of increasing their indebtedness by securing "equipment repair loans," because an inventory of their rolling stocks needs, indicates that there is, on many roads, sufficient good order locomotives and cars to more than meet the transportation demands under present traffic conditions. It would therefore, seem wise to consider, in connection with the

"research" policy to which the Association of Railway Executives recently committed the railroads, as to what might be done in re-capturing carload and l.c.l. freight now being moved by interstate and contract motor carriers. The latter are unregulated by most of the states and take the "cream" from both railroads and legitimate motor truck common carriers.

The demountable container tried out by several of the railroads and at present used by two of the largest, has its limitations in that it is not sufficiently mobile to form a co-ordinating link between rail and motor transport, not making it possible to keep freight always on its original wheels, irrespective of material or commodities transported.

A cardinal principle of economical transportation—to "keep freight on original wheels as far as possible"—must be followed through with motor transport equipment in order to make the railroad a profitable, economic and social agency serving all communities requiring national transportation outlets.

To accomplish this, "research" will find it possible to convert many of the parts of the 200,000-odd bad order cars into the construction of railroad skeleton flat cars or chassis cars following A.R.A. standards. Such cars would be operated in any freight train mixed with box, stock, tank, gondola or other cars. Astride each chassis car, there could be two or more four-wheel drive-away truck bodies locked on chassis and sealed for transit. These mobile bodies would be built in contour of the line clearance of the railroads in various capacities, five to ten tons depending upon the kind of freight to be handled. Complete fast moving trains consisting entirely of chassis cars with mobile bodies would permit speeding up the movement of a great deal of freight that is now carried by motor truck. A very low cost per ton-mile would result.

Upon arrival at destination, the chassis cars could be "cut out" of the train and switched to tracks having concrete ramps along the outside of the rails high enough to engage the overhanging wheels of the drive-away truck bodies. These bodies could be unlocked automatically by air, and a switch engine could pull out the chassis cars of a fifty-car train or more within less than 10 minutes after arrival, by one movement. Then gasoline tractors could couple on to one or more drive-away bodies from where they stood on the ramp; drive off for delivery to consignee or several consignees. No electric cranes would be required, either at terminals or local stations.

By this transportation tool—the skeleton flat car with four-wheel drive-away truck bodies astride—considerable amount of warehousing, transfer, trapcar work, as well as handling large amounts of l.c.l. freight would be eliminated. At the same time the railroad would be giving an economical pick-up and delivery service for its shippers, which might be handled through the Railway Express Agency organization in conjunction with the freight traffic departments of the railroads.

It is estimated that \$50,000,000 would be required to place railroad equipment in shape, under present circumstances. Part of this amount would do a great deal of actual good in protecting the rail investment against competition were it to be distributed in the form of a rail-motor co-ordination loan.

A. B. COLE.

New Book

Universal Directory of Railway Officials, 1932. 378 pages, 8¼ in. by 5¼ in. Bound in cloth. Published by the Directory Publishing Company, Ltd., 33 Tothill Street, Westminster, London, Eng. Price 20 shillings.

This is the thirty-eighth edition of this well-known reference book which is compiled annually under the direction of the editor of the Railway Gazette (London). It is published in the usual form and thus brings up to date its lists of railway officers of Great Britain, Ireland, Europe, Asia, Australasia, Africa, and North, Central and South America. In addition to this personnel data there is included, as heretofore, information on the gage, mileage and rolling stock of the various railways as well as listings of railway institutions, associations and supply companies. The convenient index by countries, by railroads and by individual officers is also continued.

Odds and Ends . . .

They Keep on Stealing Locomotives

There seems to be a veritable crime wave around railroad roundhouses. The latest report of the theft of a locomotive comes from Carrizozo, N. M., where a young Mexican, who wanted a ride, walked into the Southern Pacific roundhouse, climbed into a locomotive and drove it 800 ft. down the track. At this point a mixed freight and passenger train which was standing in the way brought the Mexican's joy-ride to an abrupt end.

The Added Attractions of Matrimony

The Italian State Railways have announced an 80 per cent reduction in round-trip tickets for Rome for newly married couples. The move was promoted by the government to foster interest in marriages, which seems to have been declining lately in Italy. Newly married couples must present their wedding certificates when applying for tickets, and the tickets must be purchased within a week after marriage.

Engineering Notes

Two track gangs which merit attention have recently come to our notice. One of them is a gang of 31 men employed on the Erie in the vicinity of Markle, Ind. Not one of these 31 men lives in a bunk car nor do any of them go to work in track motor cars. All of them were locally recruited and all of them use automobiles to get to the places where they are to spend their working hours each day. Furthermore, they all get there on time at 7 a. m., although some of them have to come as far as 25 miles.

The other gang is on the Milwaukee and it is engaged at the moment in tightening track bolts with power machines. Of the 10 men in this gang, 5 are recent college graduates and 1 of them was rather widely known as a football star at Northwestern University.

Feathered Traffic

Probably few people appreciate the extent of the traffic in homing pigeons which the railways enjoy. Sometimes the shipments of homing pigeons consist of only a few crates, but at other times they make up entire carloads. Only a short time ago a carload of 1,500 of these birds passed through Omaha on their way via the Union Pacific to Columbus, Neb. A few days later the Union Pacific handled a crate of homing pigeons from Omaha to Wells, Nev. It is said that, in an ordinary year, the owners of homing pigeons in the United States pay approximately \$100,000 in transportation charges.

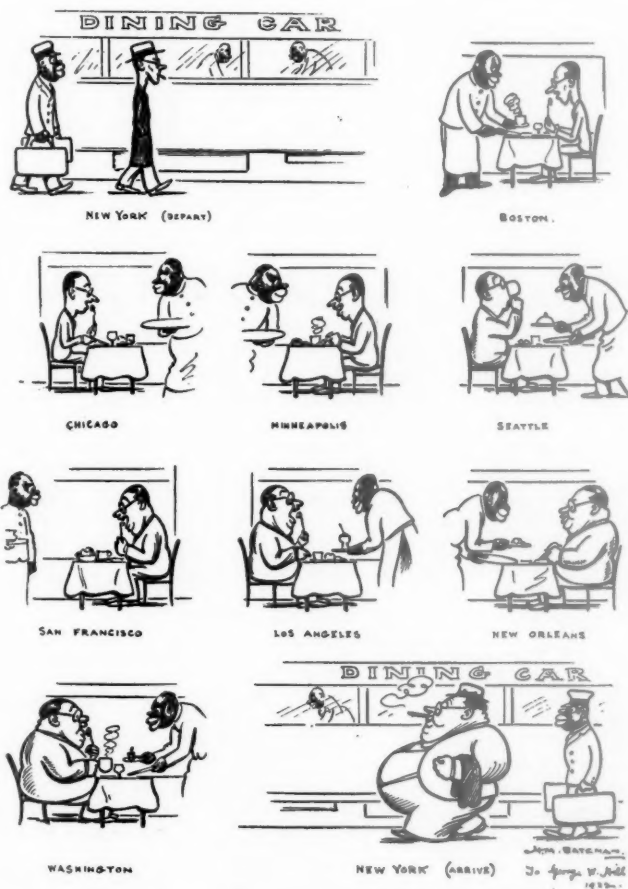
When the birds are in transit on the railroads, they are usually being shipped to some station to be released for a race back to their home lofts. Railway agents are the official starters of these races. For instance, A. W. Bean, Union Pacific agent at Columbus, Neb., is the official starter for the short races of the Omaha Flying Club, between Columbus and Omaha, a distance of 75 miles. Mr. Bean releases the birds early in the morning and reports to officials of the Omaha club the exact hour, minute and second when the flyers were started. On the leg of each pigeon is a rubber band carrying a number, and the moment a bird alights at its home loft, its owner removes the band and inserts it in an automatic clock which registers the time of the flyer's arrival. When all the birds are at home, the time of each is computed and the winner is determined. Other Union Pacific agents who are popular starters for the Omaha Flying Club are R. C. Grieve, agent at Central City, Neb., 106 miles from Omaha; W. B. Evans, agent at Shelton, 150 miles from Omaha; Agent L. O. Cruson of Lexington, 200 miles from Omaha; and Agent L. F. Kidwiler of North Platte, 250 miles from Omaha. Other races over distances of 300, 400 and 550 miles are run by the Omaha Flying Club, with the co-operation of railway agents. The big race, however, which ends the season, is the 1,000 mile

race starting at Wells, Nev. H. P. Davis, agent at that point, is the starter of this event.

Nor is the homing pigeon traffic confined to the United States. From March to September, there is a continuous stream of this kind of traffic in Great Britain. Birds are sent by rail in baskets for distances of more than 600 miles. London bird owners favor northern Scottish stations as starting points for their flights. Other owners send their pigeons away to the south of France and even to Spain. For the more important pigeon races, the British railways run special bird trains with attendants to care for the feathered racers en route. The rates for transporting pigeons in Europe are very low. For example, a charge of only about five cents is made for the movement of a bird from Penzance to Thurso, a distance of more than 600 miles.

An Appreciative Englishman

There is one man at least who has a liking for the dining car service on railways of the United States. He is H. M. Bateman, the famous London cartoonist. Mr. Bateman recently visited this country and made a complete circuit of it by rail, starting from New York and stopping on the way at Chicago, Minneapolis, Minn., Seattle, Wash., San Francisco, Cal., Los Angeles, Cal., New Orleans, La., and Washington, D. C. He was greatly impressed by the efficiency and general excel-



Cartoonist Bateman Expresses His Liking for American Dining Car Service

lence of the dining car service on the railways—in fact, so impressed that he recorded his appreciation in a cartoon, reproduced herewith. The original was presented by Mr. Bateman to George W. Hill, president of the American Tobacco Company, who, in turn, sent it to President Denney of the Erie. Mr. Denney then passed it along to the editor of the Erie Railroad magazine, from which we have reproduced it.

NEWS

Quebec To Act Soon On Truck Competition

Railway difficulties arising from present conditions to be studied shortly

Problems of the Quebec railways arising from competition by motor trucks are shortly to be studied by the provincial government. The report of the Dominion Royal Commission on transportation is expected shortly, and it is believed that, following this, the government will take appropriate action.

Representatives of the railways have been gathering data on this competition, which will be laid before Premier Taschereau within a short time, with a request for legislation, or action under present legislation, to take effect when the roads are opened up next spring.

In 1929 the powers of the Quebec Public Service Commission were extended to include motor trucks doing a public carrier business, the truck of this kind being placed on the same basis as the bus, which is now governed by regulations of the Commission, and operates only on defined highways under permits issued by the Commission. As regards motor trucks however, the situation has been found to be too complicated to apply the same procedure as is done for buses, with the result that relatively few trucks come under the regulation of the Commission. In some cases groups of farmers in a rural community have joint ownership in one truck, sending goods to Montreal or other central points, and operating a service for their neighbors as a side line.

The principal complaint of the railways is not that the trucks do not get permits from the Commission, but that the rates on freight carried are set without any control by public authority, with the result that in many instances they are so low as to make competition by the railways almost impossible during the good weather months.

It has been suggested that instead of rate regulation the provincial government should amend the Motor Vehicle Act so as to increase substantially the license fee for motor trucks, and in that way secure more revenue for maintenance of roads, and, through higher costs to the truck owners, force up rates to a more fair competitive basis.

The question of carrier responsibility is also involved, the public not being secured for loss in many instances. When the issue comes to be dealt with at Quebec the question of compulsory insurance will be raised.

Government Action on Railroad Problem Prerequisite to General Recovery

Government has long exercised the strictest sort of regulatory control over the railroads, and now the time has come when it must adopt sweeping measures to alleviate the financial plight of these carriers as a prerequisite to business recovery. The railroads are our greatest industry. Their value exceeds that of all our manufacturing equipment combined. Our banks, our insurance companies and our colleges depend heavily on the soundness of their bonds. Our railroads are rapidly running into a financial crisis. It is doubtful if the railroads as a whole can earn enough in 1932 to pay more than 60 per cent of their fixed charges. They pay nearly a million dollars a day in taxes, and their losses this year will amount to nearly a million dollars a day.

The railroads have outstanding about 23 billion dollars of stocks and bonds. With most of the roads threatened with insolvency because of inability to earn enough to pay the interest on their bonds, the market prices of their securities have fallen to unprecedentedly low levels. It seems idle to expect a durable and continuing recovery in general security prices while the vast totals of rail securities are not earning interest charges.

From a statement by Col. Leonard P. Ayres, Vice-Pres., Cleveland Trust Co.

Freight Tonnage in 1931

In the *Railway Age* of August 13, page 232, it was incorrectly reported that the Class I railways in 1931 carried 1,065,034-171 tons of freight. This figure should have read 1,605,034,171.

Lavis To Study Dominican Railways

Fred Lavis of New York, consulting engineer and former president of the International Railways of Central America, has been engaged by the Dominican Republic to inspect and report on the general land transportation system of that country.

Mr. Lavis plans to devote special attention to means of co-ordinating rail and highway transport.

Philadelphia Organizes Employees Association

Declaration of policy adopted unanimously at mass meeting on August 23

An enthusiastic mass meeting of 600 persons in the auditorium of the Railroad Y. M. C. A. in West Philadelphia on Tuesday evening, August 23, resulted in the organization of the Railroad Employees & Taxpayers Association of Philadelphia. The following Declaration of Policies was adopted by unanimous vote:

"WHEREAS: The Railroad Employees and Taxpayers Association of Philadelphia has been organized, and it is now desired to express in definite form the aims and purposes of the Association:

"NOW, THEREFORE, BE IT RESOLVED by the Association in meeting assembled that the following are declared to be the policies for which this Association stands and to the accomplishment of which its efforts will be directed:

"1. The Association believes that despite the appearance and development of other methods of transportation the railroads of this country are and will continue to be the backbone of transportation; that the preservation of the railroads in full vigor and strength is vital in the general public interest and to the communities they serve; that the competitive disadvantages with which railroads are faced today are largely influenced by the unfair burdens of regulation and taxation imposed upon them and not imposed upon and borne by their competitors. The Association asserts that this inequality is unsound in principle and antagonistic to the public interest. It will therefore be the purpose of this Association to exercise every consistent means to remove the existing disparity between the conditions under which the railroads, on the one hand, and those engaged in highway and other forms of transportation, on the other, are permitted to do business.

"2. This Association further believes that the business of highway transportation has developed with such rapidity that it has outstripped proper legislative and administrative control, and that as a result the public safety and welfare are today seriously jeopardized.

"3. To correct these conditions this Association advocates:

"(a) Those engaging and proposing to engage in highway transportation for hire should be required first to obtain authority to do so from the duly established public supervisory body, to the end that

unnecessary and destructive competition with rail transportation facilities shall be avoided.

"(b) Since operators for hire on the highways are engaged in a public business, there should be no distinction, insofar as regulation is concerned, between the so-called private or contract haulers and the common carrier by motor vehicle. Regulation necessary and proper for the one is equally necessary and proper for the other.

"(c) The concrete roads now being built by the State Highway Department are much heavier and more costly than roads which would carry only automobiles and light trucks. The heavy buses and trucks operated for hire should be taxed on a basis which will require these commercial vehicles to pay the difference between the cost of building and maintaining the highways required for their weight and the lighter and cheaper highways that would carry automobiles and light trucks.

"(d) Interstate transportation of persons and property by motor vehicles is now conducted upon a scale which demands federal regulation of all phases of such transportation which, because of its interstate character, can not be reached by the states.

"(e) The lack of power in the regulatory body to fix and compel adherence to rates for transportation by highway vehicles for hire permits of a competition between motor vehicles and railroads which is injurious to both and destructive of rail service. Highway transportation rates should, therefore, be established upon the same principles and subject to the same requirements as are rail rates.

"(f) Restrictions upon the weight, size and speed of motor vehicles operated for hire should be imposed in the interest of the safety of others using the highways, and to protect the roads and bridges of the states against damage from excessively heavy vehicles, and for the protection of the public at large.

"(g) Operators of commercial motor vehicles should be required to carry liability insurance or other form of protection to the shippers and the public against loss resulting from their operation.

"(h) The qualifications, conditions of employment, and the hours of service of employees of motor vehicle carriers should be fixed by law in the same respects and to the same degree as the qualifications, conditions of service, and hours of service of railroad employees.

"(i) Motor vehicle carriers should be required by law to maintain proper records and to file with the regulatory and tax bodies such reports as will furnish such bodies all information necessary to exercise the function of control.

"(j) Since regulations upon the statute books are useless without regulation on the roads, a sufficient highway police force should be established to enforce obedience to the laws and to punish violations thereof."

The call for the meeting was sponsored by a group of representative employees of the Pennsylvania Railroad, Reading Company and Baltimore & Ohio, to consider what measures should be taken to protect the railway employees and the public

from the results of unfair highway and waterway competition.

Samuel L. Lewis, State Secretary of Highways for the Commonwealth of Pennsylvania, pointedly commented on the great damage which is being done to the roads and highways by the large trucks, and said that something must be done to reduce the size and weight of these trucks. In his opinion the taxpayers and the railway employees have a common cause in fighting for the preservation of the highways from unfair usage.

Addresses were also made by Roy V. Wright, managing editor of the *Railway Age*; W. A. Wheeler, chairman of the executive committee of the Railroad Employees Association of Pennsylvania which has a strong organization in the northern part of the state, centering in Scranton; H. H. Parker, president of the Railroad Employees & Taxpayers Association of Virginia, which has done such excellent work in pioneering in this field; and Seibert L. Witman, head of the American Federation of Workers on the Reading System. Mrs. Parker, president of the women's auxiliary of the Virginia association, was presented and given an ovation.

C. C. Kinney, secretary of the Freight Agents' Association of Philadelphia, was elected president of the newly organized association and made a strong and impressive statement of the various facts relating to the abuses of the highways by the motor vehicle carriers. Other officers of the association are, first vice-pres., J. T. Drennan, towerman, Reading Company; second vice-pres., A. R. Miller, telegraph dept., Baltimore & Ohio.

The following members were elected to act with the officers of the association as its board of directors: L. Byrnes, local chairman, B. of L. E., Reading Co.; H. E. Core, genl. chairman, B. of L. F. & E., P. R. R.; W. C. Knowles, genl. chairman, O. R. C., P. R. R.; L. W. Stoudt, chairman, B. of R. T., B. & O.; H. W. Bowker, clerk, Relief Dept., P. R. R.; J. T. Redmond, regional chairman, M. W. & S. Forces, P. R. R.; T. H. Davis, genl. chairman, Shop Crafts, P. R. R.; J. E. McGoldrick, bus. mgr., Am. Fedn. of R. R. Workers, Reading Co.; G. M. Hill, regional chrn., Misc. Forces, P. R. R.; C. P. Brady, secretary, Vet. Employees Assn., P. R. R.; M. F. Loughner, president, Mutual Benefit Assoc., P. R. R.; Harry Narr, president, Vet. Employees Assn., Reading Co.; F. H. Haynes, Clerks Coop. Assoc., Reading Company.

Another Successful Excursion on the Milwaukee

Encouraged by the response of the traveling public to various low rate excursion fares that it has offered recently, the Chicago, Milwaukee, St. Paul & Pacific advertised an excursion to Wisconsin Dells, Wis., for Sunday, August 21, at a rate of \$2 for the 390-mile journey. Because of the limited boat facilities at that point the sale of tickets was to be limited to 3,000. However, more than 3,100 persons had purchased tickets before the wickets at the Chicago Union Station could be closed Sunday morning. The first special train was loaded and des-

patched 45 minutes prior to the advertised schedule, while three additional trains followed at close intervals. This road has announced that it will offer another dollar excursion from Chicago to Milwaukee, Wis., and return on Sunday, August 28.

Rice Miller Appointed to Illinois Commerce Commission

Rice Miller, Hillsboro, Ill., has been appointed a member of the Illinois Commerce Commission by Governor Louis L. Emmerson to fill the vacancy caused by the resignation last fall of Charles W. Hadley, Wheaton, Ill., to enter the Republican primaries as a candidate for attorney-general. Mr. Miller has been active in the affairs of the Illinois Coal Operators' Association for a number of years.

Cent-and-Half a Mile on the Southern

The Interstate Commerce Commission has authorized the Southern Railway to make an experimental reduction in passenger fares on a basis of 1½ cents a mile, good in coaches, between Goldsboro and Winston-Salem, N. C., and all stations between those points, on the one hand, and Chattanooga and Knoxville, Tenn., and intermediate points on the other, to expire on November 30, but only on giving the usual statutory notice of 30 days. The company had asked permission to make the rates effective on September 15 on short notice.

New Rates on N. Y. C. Meet Truck Competition

New York Central traffic officers, according to a recent statement, are confident the reduced container rates, recently authorized by the Interstate Commerce Commission, and the road's new all-commodity box car rate will result in returning to the railroad considerable business now being handled by motor trucks.

The new rates became effective on August 13 and on that day, the statement says, "19 containers and 14 box cars were handled, each filled with merchandise that otherwise would have been transported by motor trucks."

C. & N. W. Corn King Limited Faster

The Chicago & North Western has reduced the schedule of the Corn King Limited 1 hr. 21 min. and has also made several changes in the schedules of trains between Omaha, Neb., and Chicago. The Corn King Limited now leaves Omaha at 7:30 p.m. instead of 6 p.m., and arrives in Chicago at 7:29 a.m. instead of 7:20 a.m. Returning, it leaves Chicago at 6:05 a.m. as previously, and arrives at Omaha at 7:15 a.m. instead of 7:25 a.m. The Mountain Bluebird now leaves Omaha at 5 p.m. instead of 3:45 p.m. and arrives in Chicago at 7:20 a.m. instead of 7 a.m. Westbound, the Mountain Bluebird and the Gold Coast Limited have been combined, the train leaving Chicago at 1:50 a.m. and arriving in Omaha at 3:30 p.m. Formerly these trains left Chicago at 11:20 p.m. and arrived in Omaha at 12:15 p.m. The Gold Coast Limited and the

(Continued on page 308)

Operating Statistics of Large Steam Railways—Selected Items for the Month of June, 1932,

Region, road and year	Average miles of road operated	Train-miles	Locomotive-miles		Car-miles		Ton-miles (thousands)		Average number of locomotives on line				
			Principal and helper	Light	Loaded (thousands)	Per cent loaded	Gross. Excluding locomotives and tenders	Net. Revenue and non-revenue	Servicable	Un-servicable	Per cent un-servicable	Stored	
New England Region:													
Boston & Albany.....	1932	402	105,640	109,886	6,959	2,897	67.8	145,773	46,716	71	48	40.2	27
1931	402	134,792	141,340	11,430	3,695	66.8	189,779	63,607	80	49	37.8	22	
Boston & Maine.....	1932	2,062	297,981	281,443	22,595	7,858	66.2	415,978	144,091	143	143	49.9	32
1931	2,066	297,119	339,458	30,231	9,818	68.8	502,673	181,807	209	89	29.9	32	
N. Y., New H. & Hart.....	1932	2,056	325,215	381,741	19,924	9,805	64.2	515,067	172,799	208	137	39.7	9
1931	2,074	429,178	501,637	26,125	13,471	63.5	720,146	254,182	254	93	26.8	27	
Great Lakes Region:													
Delaware & Hudson.....	1932	848	190,826	241,450	22,804	5,543	59.6	340,609	144,474	249	26	9.4	160
1931	876	240,729	314,168	34,650	7,713	60.9	476,349	212,793	240	31	11.4	122	
Del., Lack. & Western.....	1932	998	297,151	324,443	38,041	9,044	66.0	502,381	183,612	211	56	21.0	69
1931	998	381,697	419,542	46,490	12,345	66.1	705,650	280,477	220	53	19.5	39	
Erie (inc. Chi. & Erie).....	1932	2,316	622,854	653,471	39,584	24,213	59.5	1,490,428	495,480	359	139	27.9	136
1931	2,316	704,315	734,589	64,365	30,654	59.4	1,873,186	654,416	384	99	20.5	118	
Grand Trunk Western.....	1932	1,023	184,551	185,586	748	4,001	59.5	236,949	73,799	100	54	35.2	34
1931	1,022	228,615	230,713	1,985	5,918	59.4	352,915	122,247	115	34	22.9	38	
Lehigh Valley.....	1932	1,343	310,608	321,691	26,341	9,453	62.9	556,997	207,532	201	149	42.7	60
1931	1,343	412,993	435,781	38,555	12,578	63.3	766,616	316,468	217	137	38.7	39	
Michigan Central.....	1932	2,115	327,856	328,150	8,190	9,455	60.1	534,359	161,659	130	72	35.5	41
1931	1,869	373,269	373,937	9,041	11,941	60.2	690,937	229,877	155	59	27.4	59	
New York Central.....	1932	6,225	1,231,342	1,292,907	74,615	42,930	59.8	2,585,719	968,299	613	673	52.3	107
1931	6,423	1,566,567	1,677,897	96,392	57,767	60.6	3,562,160	1,435,183	864	516	37.4	266	
New York, Chi. & St. L.....	1932	1,660	412,682	433,759	6,202	12,194	61.8	696,731	221,256	145	89	38.1	46
1931	1,660	463,713	481,814	3,187	14,987	59.4	883,383	296,786	177	68	27.7	60	
Pere Marquette.....	1932	2,243	267,202	270,394	2,701	5,572	58.1	355,869	128,069	140	38	21.5	37
1931	2,242	303,910	308,433	3,537	7,278	59.9	454,698	176,084	146	31	17.5	36	
Pitts. & Lake Erie.....	1932	235	46,272	46,797	501	1,782	56.7	142,137	75,904	40	44	52.6	21
1931	235	80,811	83,474	1,400	2,734	57.9	225,960	125,191	61	17	22.2	34	
Wabash.....	1932	2,497	502,818	513,574	10,081	14,494	62.9	815,617	246,592	218	152	41.1	46
1931	2,497	650,259	682,779	11,703	19,513	61.2	1,132,480	353,926	268	139	34.1	54	
Central Eastern Region:													
Baltimore & Ohio.....	1932	6,277	1,171,869	1,326,474	127,169	31,357	60.0	2,001,706	809,213	861	475	35.6	299
1931	6,285	1,481,985	1,728,188	189,284	44,377	59.4	2,985,979	1,298,341	1,061	336	24.1	336	
Big Four Lines.....	1932	2,790	527,244	543,454	11,609	14,178	60.6	874,019	361,382	254	166	39.5	53
1931	2,721	602,480	626,722	17,886	18,366	59.6	1,168,027	501,309	266	162	37.9	54	
Central of New Jersey.....	1932	692	133,126	144,734	24,897	3,811	58.3	250,627	109,523	117	61	34.2	50
1931	692	183,876	198,875	30,149	5,241	56.1	355,546	155,404	140	44	24.1	46	
Chicago & Eastern Ill.....	1932	939	147,170	147,410	2,239	2,787	61.9	171,478	67,329	90	75	45.4	47
1931	939	166,612	166,788	2,217	4,015	61.8	239,385	94,207	92	67	42.1	44	
Elgin, Joliet & Eastern.....	1932	447	55,217	55,495	959	1,243	57.1	92,576	42,485	82	8	8.7	40
1931	447	91,252	93,611	1,993	2,178	59.1	168,423	82,995	76	15	16.6	21	
Long Island.....	1932	396	28,081	29,287	10,418	303	52.1	21,321	8,234	39	8	18.1	11
1931	400	41,453	43,956	11,216	485	52.8	35,579	14,561	43	5	9.5	11	
Pennsylvania System.....	1932	10,536	2,333,205	2,579,377	246,363	78,332	61.2	5,029,023	2,034,138	2,095	434	17.2	1,045
1931	10,637	3,177,903	3,544,905	355,335	107,115	61.1	7,077,983	3,018,181	2,268	286	11.2	839	
Reading.....	1932	1,453	336,372	358,357	31,704	8,592	58.5	588,314	259,396	295	100	25.3	135
1931	1,451	469,520	508,357	45,319	12,415	57.6	893,644	408,418	315	77	19.8	77	
Poconos Region:													
Chesapeake & Ohio.....	1932	3,136	652,932	675,129	19,279	25,149	56.0	2,100,813	1,113,739	546	113	17.2	288
1931	3,116	947,850	995,380	34,658	37,227	55.1	3,146,268	1,683,131	629	73	10.3	287	
Norfolk & Western.....	1932	2,258	469,695	484,796	19,827	16,210	60.5	1,277,053	660,848	435	54	11.1	228
1931	2,232	672,696	725,416	30,799	24,153	59.0	1,974,248	1,021,917	449	39	7.9	152	
Southern Region:													
Atlantic Coast Line.....	1932	5,144	551,034	552,877	7,887	10,544	63.7	549,510	186,629	376	97	20.5	114
1931	5,163	710,793	719,416	10,031	15,789	62.8	854,012	303,663	412	76	15.6	84	
Central of Georgia.....	1932	1,900	179,721	181,471	3,317	3,750	67.1	194,856	67,036	92	51	35.4	3
1931	1,900	235,107	236,287	5,549	5,298	66.0	291,370	108,406	118	31	20.6	...	
Ill. Cent. (inc. Y. & M. V.).....	1932	6,658	1,181,598	1,195,373	19,740	27,329	60.3	1,696,488	627,376	739	209	22.0	73
1931	6,670	1,583,301	1,601,396	26,884	37,582	60.4	2,445,536	900,762	715	188	20.8	38	
Louisville & Nashville.....	1932	5,263	804,461	845,734	17,387	16,362	60.0	1,075,649	470,824	450	263	36.8	179
1931	5,263	1,179,156	1,241,692	33,782	24,673	57.5	1,693,855	750,612	519	180	25.8	119	
Seaboard Air Line.....	1932	4,437	400,484	408,456	4,393	7,917	60.8	445,237	145,096	252	36	12.5	63
1931	4,466	529,954	548,051	6,442	12,394	63.1	700,379	256,181	270	24	8.2	36	
Southern.....	1932	6,669	939,278	946,029	15,824	19,879	65.9	1,055,127	370,485	726	226	23.8	242
1931	6,675	1,189,164	1,203,292	21,209	27,903	64.3	1,536,919	576,819	797	174	17.9	219	
Northwestern Region:													
Chi. & North Western.....	1932	8,443	798,679	824,035	15,165	18,439	62.7	1,056,010	341,128	643	166	20.5	322
1931	8,459	1,094,924	1,141,622	27,646	27,272	62.7	1,613,735	587,082	681	116	14.6	143	
Chi. Gt. Western.....	1932	1,448	175,075	175,155	12,288	5,535	59.6	334,855	115,017	64	49	43.6	6
1931	1,459	224,157	224,334	17,020	6,925	59.5	427,215	160,085	104	12	10.5	12	
Chic., Milw., St. P. & Pac.....	1932	11,266	1,046,882	1,092,898	51,555	25,163	60.0	1,591,306	614,151	756	141	15.8	399
1931	11,302	1,347,452	1,436,852	73,070	35,887	60.3	2,250,342	886,664	781	137	14.9	305	
Chi., St. P., Minn. & Om.....	1932	1,714	200,475	205,637	7,816	3,699	68.4	209,872	84,072	140	28	16.5	67
1931	1,714	233,099	249,929	10,126	4,675	65.7	264,994	107,265	151	23	13.2	60	
Great Northern.....	1932	8,432	532,928	535,345	12,216	13,392	64.4	826,171	337,809	465	138	22.8	141
1931	8,342	597,973	603,247	18,299	19,640	67.4	1,230,246	576,833	484	144	22.9	141	
Minn., St. P. & S. St. M.....	1932	4,325	324,122	326,655	1,755	6,109	65.7	335,637	129,239	141	56	28.4	17
1931	4,356	361,862	366,667	2,699	8,224	66.3	454,470	188,827	158	67	30.0	33	
Northern Pacific.....	1932	6,398	508,831	536,675	33,432	13,217	63.9	805,769	277,659	387	131	25.3	118
1931	6,458	630,648	666,55										

Compared with June, 1931, for Roads with Annual Operating Revenues Above \$25,000,000

Region, road and year	Average number of freight cars on line			Per cent un-serv-ice-able	Gross ton-miles per train-hour, ex-cluding locomotives and tenders	Gross ton-miles per train-mile, ex-cluding locomotives and tenders	Net ton-miles per train-mile	Net ton-miles per loaded car-mile	Net ton-miles per car-day	Car-miles per car-day	Net ton-miles per mile of road per day	Pounds of coal per 1,000 gross ton-miles, including locomotives and tenders	Loco-motive-miles per loco-motive-day
	Home	Foreign	Total										
New England Region:													
Boston & Albany.....1932	4,245	2,550	6,795	30.3	21,453	1,380	442	16.1	229	21.0	3,876	148	32.7
1931	3,491	3,034	6,525	11.9	21,290	1,408	472	17.2	325	28.3	5,277	153	39.5
Boston & Maine.....1932	11,326	6,154	17,480	14.8	22,663	1,642	568	18.3	271	22.3	2,294	102	35.4
1931	10,937	7,839	18,776	10.2	21,559	1,692	612	18.5	323	25.3	2,934	108	41.3
N. Y., New H. & Hart..1932	16,221	9,165	25,386	8.1	23,500	1,584	531	17.6	227	20.1	2,802	107	38.8
1931	15,392	11,718	27,110	4.3	23,908	1,678	592	18.9	313	26.1	4,085	102	50.7
Great Lakes Region:													
Delaware & Hudson....1932	12,973	2,326	15,299	3.2	24,434	1,785	757	26.1	315	20.3	5,678	114	32.1
1931	11,068	3,712	14,780	3.6	25,690	1,979	884	27.6	480	28.6	8,100	119	42.9
Del., Lack. & Western..1932	20,318	3,216	23,534	7.4	24,802	1,691	618	20.3	260	19.4	6,132	124	45.3
1931	18,897	4,520	23,417	6.5	25,555	1,849	735	22.7	399	26.6	9,367	126	56.9
Erie (inc. Chi. & Erie)..1932	36,755	9,639	46,394	4.5	38,832	2,393	795	20.5	356	29.2	7,131	93	46.4
1931	33,653	12,357	46,010	4.9	40,145	2,660	929	21.3	474	37.4	9,420	96	55.1
Grand Trunk Western....1932	4,883	6,899	11,782	12.2	24,307	1,284	400	18.4	209	19.0	2,404	99	40.3
1931	5,215	9,057	14,272	9.1	24,895	1,544	535	20.7	286	23.1	3,989	92	51.8
Lehigh Valley.....1932	23,405	3,763	27,168	14.2	30,457	1,793	668	22.0	255	18.5	5,150	108	33.1
1931	22,077	5,313	27,390	9.2	30,708	1,856	766	25.2	385	24.2	7,856	128	44.6
Michigan Central.....1932	25,057	15,721	40,778	6.4	30,434	1,630	493	17.1	132	12.9	2,548	109	55.6
1931	24,927	15,191	40,118	6.5	34,058	1,851	616	19.3	191	16.5	4,100	100	59.7
New York Central.....1932	77,118	66,753	143,871	15.5	33,331	2,100	786	22.6	224	16.6	5,185	95	35.4
1931	80,132	65,676	145,808	9.9	33,442	2,274	916	24.8	328	21.8	7,448	93	42.8
New York, Chi. & St. L..1932	16,192	5,372	21,564	12.7	30,034	1,688	536	18.1	342	30.5	4,442	90	62.8
1931	16,020	7,606	23,626	9.3	30,368	1,905	640	19.8	419	35.6	5,959	95	66.2
Pere Marquette .....1932	14,124	3,185	17,309	3.2	22,124	1,332	479	23.0	247	18.5	1,903	86	51.1
1931	12,519	4,469	16,988	3.3	22,909	1,496	579	24.2	346	23.8	2,619	88	58.8
Pitts. & Lake Erie.....1932	18,244	6,103	24,347	28.0	39,362	3,072	1,640	42.6	104	4.3	10,758	108	18.7
1931	20,068	4,299	24,367	8.8	36,264	2,796	1,549	45.8	171	6.5	17,756	93	36.3
Wabash .....1932	19,561	7,158	26,719	7.9	33,582	1,622	490	17.0	308	28.7	3,292	97	56.2
1931	20,874	9,007	29,881	7.6	33,719	1,742	544	18.1	395	35.5	4,725	102	56.8
Central Eastern Region:													
Baltimore & Ohio.....1932	99,221	13,716	112,937	11.7	23,486	1,708	691	25.8	239	15.4	4,297	140	36.3
1931	94,349	20,176	114,525	8.3	25,696	2,015	876	29.3	378	21.7	6,886	134	45.8
Big Four Lines.....1932	23,603	16,817	40,420	14.3	29,962	1,658	685	25.5	298	19.3	4,317	107	44.1
1931	24,733	21,794	46,527	6.5	32,112	1,939	832	27.3	359	22.1	6,142	103	50.2
Central of New Jersey...1932	18,621	5,140	23,761	21.2	24,148	1,883	823	28.7	154	9.2	5,274	142	31.8
1931	17,205	7,613	24,818	12.2	25,293	1,934	845	29.7	209	12.6	7,483	137	41.5
Chicago & Eastern Ill....1932	6,311	1,616	7,927	14.7	20,775	1,165	457	24.2	283	18.9	2,390	129	30.3
1931	6,028	2,326	8,354	9.5	24,902	1,437	565	23.5	376	25.9	3,344	117	35.4
Elgin, Joliet & Eastern..1932	9,708	3,354	13,062	9.8	14,730	1,677	769	34.2	108	5.6	3,168	125	20.9
1931	9,274	3,865	13,139	5.9	15,391	1,846	910	38.1	211	9.4	6,188	116	35.0
Long Island .....1932	789	3,514	4,303	.7	5,409	759	293	27.2	64	4.5	693	350	28.2
1931	787	5,111	5,898	.6	6,751	858	351	30.0	83	5.2	1,213	307	38.7
Pennsylvania System....1932	252,231	47,011	299,242	7.0	31,226	2,155	872	26.0	227	14.3	6,436	121	37.2
1931	241,444	57,191	298,635	5.8	31,401	2,227	950	28.2	337	19.6	9,458	114	50.9
Reading .....1932	40,232	6,423	46,655	8.3	21,828	1,749	771	30.2	185	10.5	5,949	136	32.9
1931	37,167	9,607	46,774	4.3	23,063	1,903	870	32.9	291	15.4	9,382	130	47.1
Pocahontas Region:													
Chesapeake & Ohio.....1932	49,644	6,769	56,413	2.4	45,689	3,218	1,706	44.3	658	26.5	11,839	72	35.1
1931	48,626	9,153	57,779	2.4	45,615	3,319	1,776	45.2	971	39.0	18,004	71	48.9
Norfolk & Western.....1932	42,511	3,445	45,956	3.2	41,322	2,719	1,407	40.8	479	19.4	9,755	107	34.3
1931	38,028	5,623	43,651	1.1	43,058	2,935	1,519	42.3	780	31.2	15,262	106	51.7
Southern Region:													
Atlantic Coast Line.....1932	27,320	4,484	31,804	9.4	17,433	997	339	17.7	196	17.3	1,209	113	39.5
1931	24,832	6,270	31,102	6.7	20,709	1,201	427	19.2	325	27.0	1,961	109	49.8
Central of Georgia.....1932	7,920	1,728	9,648	20.3	19,969	1,084	373	17.9	232	19.3	1,176	127	43.1
1931	7,444	3,305	10,749	13.2	20,209	1,239	461	20.5	336	24.9	1,902	124	54.1
Ill. Cent. (inc. Y. & M. V.)1932	55,615	10,892	66,507	17.9	24,044	1,436	531	23.0	314	22.7	3,141	123	42.7
1931	52,568	14,943	67,511	10.3	25,147	1,545	569	24.0	445	30.7	4,501	123	60.1
Louisville & Nashville...1932	55,674	6,513	62,187	17.5	20,691	1,337	585	28.8	252	14.6	2,982	139	40.4
1931	50,937	8,726	59,663	13.2	21,663	1,436	637	30.4	419	24.0	4,754	134	60.8
Seaboard Air Line.....1932	15,387	3,359	18,746	8.3	18,000	1,112	362	18.3	258	23.2	1,090	126	47.9
1931	15,931	4,914	20,845	8.5	19,776	1,322	483	20.7	410	31.4	1,912	121	62.8
Southern .....1932	57,294	7,368	64,662	14.4	18,972	1,123	394	18.6	191	15.6	1,852	145	33.7
1931	55,917	10,879	66,796	13.5	20,477	1,292	485	20.7	288	21.6	2,880	143	42.0
Northwestern Region:													
Chi. & North Western...1932	46,173	15,165	61,338	7.5	19,648	1,322	427	18.5	185	16.0	1,347	122	34.6
1931	50,151	19,482	69,633	8.3	20,736	1,474	536	21.5	281	20.8	2,314	119	48.9
Chi. Gt. Western.....1932	5,189	2,789	7,978	12.3	32,272	1,913	657	20.8	481	38.8	2,648	120	55.4
1931	4,311	3,417	7,728	7.7	30,047	1,906	714	23.1	690	50.2	3,657	114	69.1
Chi., Milw., St. P. & Pac.1932	65,258	10,992	76,250	3.8	23,027	1,520	587	24.4	268	18.3	1,817	114	42.5
1931	60,468	13,964	74,432	1.9	24,291	1,670	658	24.7	397	26.6	2,615	113	54.8
Chi., St. P., Minn. & Om.1932	2,471	7,447	9,918	7.8	15,033	1,047	419	22.7	283	18.2	1,635	113	42.3
1931	2,942	8,657	11,599	7.2	15,570	1,137	460	22.9	308	20.4	2,086	114	49.8
Great Northern .....1932	44,983	5,976	50,959	7.3	23,605	1,550	634	25.2	221	13.6	1,335	122	30.3
1931	43,755	6,364	50,119	5.7	28,831	2,057	965	29.4	384	19.4	2,305	109	33.0
Minn., St. P. & S. St. M.1932	21,086	2,679	23,765	3.8	16,534	1,036	399	21.2	182	13.1	996	103	55.6
1931	20,756	3,213	23,969	3.6	18,523	1,256	522	23.0	264	17.3	1,445	96	54.7
Northern Pacific.....1932	43,733	3,396	47,129	10.3	25,409	1,584	546	21.0	196	14.6	1,447	136	36.6
1931	41,920	4,629	46,549	11.0	25,529	1,663	647	22.9	292				

NEWS

(Continued from page 305)

Columbine, which heretofore has been operated as one train between Omaha and Chicago, are being operated as separate trains, some cars of other trains being added to each. The Gold Coast Limited now leaves Omaha at 3 a.m. instead of 7:15 a.m., and arrives in Chicago at 2:30 p.m., instead of 7:45 p.m. At the same time the Los Angeles Limited and the San Francisco Overland Limited are being operated as one train in both directions between Chicago and Omaha.

Storage Tariff Suspended

The Interstate Commerce Commission has suspended until March 22, 1933, the operation of schedules published in a Central Vermont tariff, proposing to establish storage in transit arrangements whereby freight in packages or pieces, in carload lots, originating within the lighterage limits of New York Harbor, when moving via the Central Vermont Transportation Company, may be stored in transit at New London and Thamesville, Conn., and reshipped over the Central Vermont Railway to points on the Central Vermont, or via that line and its connections to destinations west of the Hudson river, on basis of through rate from point of origin to final destination.

Air-Conditioned Cars on the New Haven

The dining cars "John Bertram" and "Dreadnought" of the "Yankee Clipper"—New York-Boston train of the New York, New Haven & Hartford—have been air conditioned, and the New Haven plans eventually to so equip all of its passenger cars. The air-conditioning equipment filters the air, cools or heats it to the correct temperature, and corrects the humidity in accordance with weather conditions. Installation was made at the Readville shops of the company, and future equipping of the cars will also be done there. The system uses ice for cooling. The bunker, which is suspended beneath the car, has a capacity for 1,400 lb. of ice.

Rubber Tired Trailers Have Advantages

A series of comparative tests on rubber tired and steel wheels on industrial steel trailers, conducted at the New Haven terminal of the Railway Express Agency in New York on June 20 and 21 showed that a greater drawbar pull was required to move a trailer with the steel wheels than is required to move the same trailer and the same load on rubber tired wheels, when minor obstructions or irregularities of pavement are encountered. The test was conducted in conjunction with the B. F. Goodrich Company, Akron, Ohio, and the Mercury Manufacturing Company, Chicago.

In the tests on the starting resistance of rubber tired and steel wheels, a piece of ordinary hay wire was placed in front of both the rubber tires and steel front

wheels. Six times as much pull was required to move the trailer with the steel wheels over the hay wire as was required to move the same trailer on rubber tired wheels. The same test was made with larger wires and various loads, and the results on these showed that the larger the obstruction and the heavier the load the greater advantage rubber tires possess over steel tires. The explanation offered is that the deformation of the rubber tire makes it unnecessary to lift the load over the obstruction as is the case with equipment mounted on steel wheels.

The Railroads and the Schools

Parents who look to the public schools for the education of their children, have an interest in the earning power of the railroads. In the State of Georgia, for example, in the year 1930, the railroads paid taxes of \$4,367,510, of which at least \$1,250,000 went for the support of the schools. In some school districts the railroads pay more than half the taxes. Railway taxes in Georgia have steadily increased, while other taxes have decreased. President H. D. Pollard of the Central of Georgia, commenting on this fact, in his newspaper talks to the people of the state says: "This process cannot continue indefinitely. Unless means are found to restore the earning power of the railroads, one of two results is inevitable—either schools will suffer, or other taxpayers will find their burden increased. Those interested in the welfare of the public schools should demand that the railroads be accorded fair treatment."

Executives Discuss Wages

A discussion of present economic conditions and their probable effect on the stand that the railway managements will take at the expiration on January 31, 1933, of the temporary wage agreement under which organized railway labor voluntarily accepted a 10 per cent reduction in wages early this year was held at a meeting at Chicago on August 18 attended by executives of Eastern, Western and South-eastern railways. The discussion was of a tentative nature and the matter will be considered further at a later meeting. In view of the continued low level of railway earnings and the additional effect of the lower cost of living that now exists, it was considered certain that a continuation of the 10 per cent reduction for another year will be asked. In addition, it was expected that a further reduction of 5 or 10 per cent will be sought unless a substantial improvement in railway business takes place during the closing months of the year.

S. C. Employees Organize

The Association of Railway and Railway Express Employees of South Carolina was formed at an organization meeting at Columbia, S. C., on August 17. Representatives of all the principal railroads serving the state were in attendance. By-laws were adopted and the following officers elected: President, C. B. McRae, agent, Seaboard Air Line, Chester; secretary, G. B. Ellison, fireman, Southern Railway, Columbia;

treasurer, H. G. McCall, agent, Atlantic Coast Line, Charleston.

The by-laws provide for the division of the state into six regions, corresponding to the six Congressional districts, each with a vice-president in charge, and the following were elected vice-presidents to fill these positions: H. O. Seneseny, engineman, Southern, Charleston; H. E. Thompson, Southern, Batesberg; W. T. Stevens, Seaboard Air Line, Abbeville; W. H. Kinard, C. & W. C., Spartanburg; J. J. Hill, Southern, Rock Hill; J. E. Cothran, Atlantic Coast Line, Florence.

The Golden Rule of Safety

THEREFORE ALL THINGS WHATSOEVER YE WOULD THAT MEN SHOULD DO TO YOU, DO YE EVEN SO TO THEM; FOR THIS IS THE LAW AND THE PROPHETS.

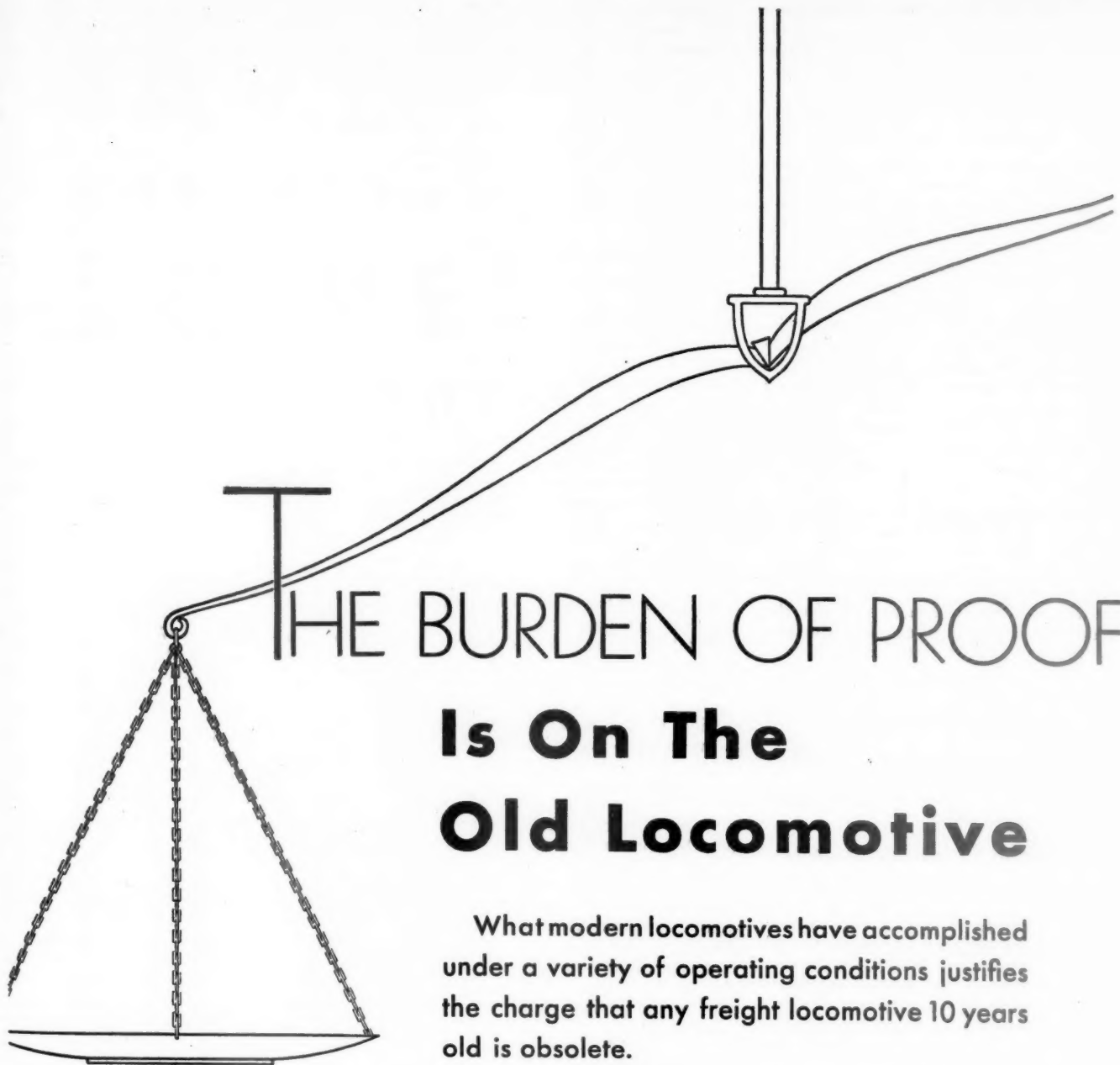
This injunction, taken from the Gospel according to Matthew, seventh chapter, is the basis of the September preachment issued by the Safety Section of the American Railway Association for the guidance of local committees in their activities during that month.

"Protect Others As You Would Have Them Protect You" is the essential message of the September poster. There is no circular for the month, the whole of the message being embraced in pictures on the poster. Members of track repair gangs are reminded to look out for the other members of the gang as well as each for himself. An electrical workman using colored glass to shield his eyes must remember his duty to look out for the eyes of other persons who may be nearby. The engineman at the front of a long train must remember the duties and circumstances and surroundings of the men at the rear.

Long Search for Perpetrator of Interstate Thefts

A record of a six-year search terminating successfully in the apprehension of a fugitive from justice, is recorded in the Bureau of Investigation, Department of Justice. In the years 1925 and 1926 a gang of freight and express car robbers had taken thousands of dollars worth of merchandise from railroad trains running in and out of Pittsburgh, Pa. This matter was brought to the attention of agents of the Bureau of Investigation, who reported that as a result of six months investigation by the railroad officials it had been discovered that for two or three years prior to 1926 many losses of entire shipments of merchandise had been sustained by the railroad company. Suspicion at the time was cast upon Calvin C. Lanham, who had been employed by the railroad company for a period of 11 years. Lanham was placed under arrest, together with his wife, when the property was found on the premises occupied by them, and the case was set down for trial in November, 1926. However, Lanham and his wife, who had been released on bonds aggregating \$7,500, failed to appear and the bonds were forfeited. Since that time agents of the Bureau have made efforts to locate Lanham and his wife, and were finally successful in apprehending Lanham at Montreal, Canada, on July 16, last. He is now in the custody

Continued on next left-hand page



THE BURDEN OF PROOF Is On The Old Locomotive

What modern locomotives have accomplished under a variety of operating conditions justifies the charge that any freight locomotive 10 years old is obsolete.

Let the old locomotive justify itself if it can.

Adopt the legal principle in use in certain countries of making the culprit prove his innocence. On this basis, how much of your present power can evade condemnation?



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of a United States Marshal to be returned to Pittsburgh there to stand trial upon the charges contained in the indictment returned against him in November, 1926.

Ontario Indicates Stand in Favor of Regulating Truck Rates

The Automotive Transport Association of Ontario at the request of the minister of highways, has framed a standard rate schedule for common carrier truck companies transporting freight over provincial highways that virtually is equal to rail tariffs, according to a recent report to the United States Commerce Department.

The proposed rates for short haul distances, (up to 25 miles) are approximately the same as the railroad schedule, but surcharges will increase the rates slightly when destinations are more than 125 miles from the shipping point. The surcharges depend largely upon the commodities transported and the distances involved.

According to the report, the minister of highways has held the view for some time that rate supervision is necessary in Ontario because of price cutting and unbridled competition. The department of highways has undertaken to supervise the establishment of uniform rate schedules and will undertake to see that these rates are enforced, the report adds. The schedule proposed by the Automotive Transport Association will be studied by the government and, if approved, probably will be used as a basis for the establishment of an official schedule of rates for motor truck operations within the province.

Selection of Engineering Students

There are many misfits in the professions, as well as in the vocations, in all walks of American life. Stevens Institute of Technology has been attempting to find ways and means of making a better selection of students in the field of engineering. This year, for the second time, it gave a two-weeks course at its camp in northern New Jersey to high school students who have just finished the work in the junior class. The purpose was to give these students a thorough understanding of the requirements, as well as of the opportunities for engineers in various classes of engineering work. Leading engineers discussed at the morning and evening sessions the facts about and the opportunities in the various fields of engineering. A few hours each day were spent in simple surveying to give the students a rough idea of this activity. Mental psychological, aptitude and numerous other tests were given to each of the students and each one was carefully studied as to background, ability, personality, etc., with a view to reporting at the end of the session on his fitness for engineering work.

Among those who discussed special topics with the students were Dr. C. F. Hirshfeld, director of research of the Detroit Edison Company, on mechanical engineering; John C. Parker, president of the Brooklyn Edison Company on electrical engineering; Robert C. Post, vice-president of Post & McCord, on steel

construction; Ralph T. Walker, of Voorhees, Gmelin & Walker, on architecture; Commander E. E. Wilson, president of the Chance Vought Corporation, on aeronautics; William L. Batt, president of the SKF Ball Bearing Company, on manufacturing; Dr. Irving Langmuir, assistant director of the research laboratories of the General Electric Company, on research; and Roy V. Wright, managing editor of the *Railway Age*, on railroading.

Loans to Railroads

The approval of an additional loan of \$31,625,000 from the Reconstruction Finance Corporation to the Baltimore & Ohio on August 19 by the Interstate Commerce Commission brought the total of loans approved by the commission to 60 railroads up to \$290,000,000, while the applications filed with the commission, as revised in some instances, totalled \$420,000,000. A report of the Reconstruction Finance Corporation as of July 31, made public on August 22 by the clerk of the House of Representatives, showed a total of loans to railroads, including receivers, of \$164,082,596, actually made by the corporation, less repayments, while \$57,075,532 additional had been authorized but not actually loaned as of that date.

Total loans made by the corporation up to that date amounted to \$866,047,522 and \$223,882,599 additional had been authorized. The list of loans made during the period from July 21 to 31 made public included only five railroads, the Buffalo-Union Carolina, \$53,960; the Denver & Rio Grande Western, \$1,000,000; the New York, Chicago & St. Louis, \$700,000; the Texas, Oklahoma & Eastern, \$108,740, and the Minneapolis, St. Paul & Sault Ste. Marie, \$5,000,000.

The loan to the Buffalo-Union Carolina had been approved by the commission on June 21; it had approved a loan of \$2,500,000 to the D. & R. G. W. in March. The loan to the Soo was approved July 25, that to the Nickel Plate on July 13 and that to the Texas, Oklahoma & Eastern on July 23.

General American to Operate Armour Tank Cars

Lester N. Selig, president of the General American Tank Car Corporation, has announced the acquisition of all the tank cars of Armour & Co., and of Penick & Ford, manufacturers of food syrups. Under the terms of the transfer, General American will lease to these companies all of their tank car requirements for a period of years. The cars will be operated and maintained through General American's organization as a part of their fleet of 30,000 tank cars.

Purchase of these cars is another step in the expansion of the company's operations in the food industry. Formerly it confined itself largely to the petroleum industry, but in recent years it has so diversified its business that foodstuffs and chemicals supply the major portion of its business.

The company now supplies all cars used by Swift & Co. and a number of smaller packing concerns. Through the General American Pfaunder Corporation it oper-

ates a fleet of glass-lined milk cars. Armour & Co. has operated about 500 tank cars in the transportation of lard, animal fats and tallow. These products are loaded as liquids, each car being equipped with heater coils to facilitate unloading.

Penick & Ford's principal product is table syrup. The company also produces other refined syrups which are sold in tank car quantities to manufacturers of candies and other food products. It also deals in molasses in wholesale lots and has about 200 tank cars.

New York Central Operated Primarily for Benefit of Tax Collector

More than half a billion dollars has been paid in taxes by the New York Central, as it is now constituted, in the last 17 years and the first six months of 1932, according to President F. E. Williamson. The taxes paid totaled \$508,071,245. In the same period dividends, paid up to the last quarter of 1931, totaled \$365,701,304 or \$142,369,941 less than the tax payments.

Of the total disbursed in this period for taxes and dividends, taxes accounted for 57 per cent and dividends for only 43 per cent. For the 17 years tax payments averaged \$29,032,642 yearly and dividends averaged \$20,897,217, or \$8,135,425 less each year.

From 1915 to 1931, taxes increased two and a half times, from \$12,654,265 to \$32,215,328. Dividends in 1915 were \$15,798,783, or 125 per cent of the taxes in that year, but thereafter up to 1930 were materially less each year than tax payments. In 1931, the dividends were only \$19,970,304 or 61.9 per cent of the taxes in 1931. The year 1930 was the only one since 1915 in which dividends exceeded taxes paid. Even in 1930, when the dividends paid, \$39,940,593, set a record, being 8 per cent on the stock outstanding, the taxes amounted to \$34,009,020, or 83 per cent of the dividends.

For the first half of 1932 taxes accrued amounted to \$16,074,065. This drop from the first half of the previous year was due largely to the fact that no federal income tax was accrued by the railroad because it had no taxable income, though some of the lessor companies included in the system did have.

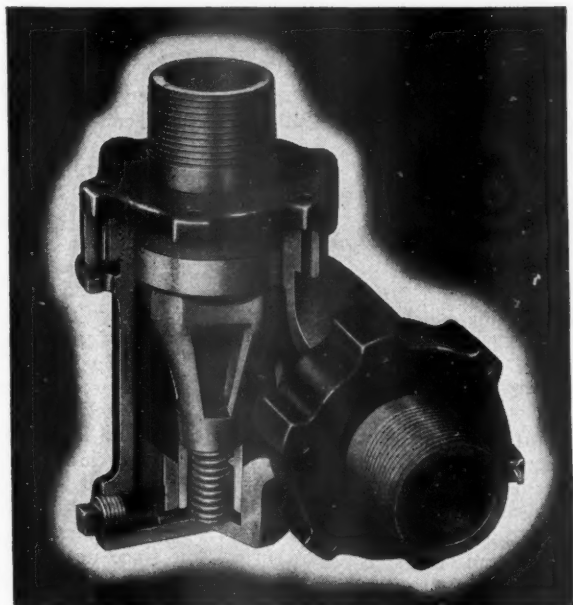
Alabama Forms Employees Federation

A statewide organization of railway and express employees of Alabama took definite form at a meeting at Montgomery on August 23 when by-laws were adopted and officers elected for the Alabama Association of Railway and Express Employees Club. Twenty-one Alabama clubs were represented by the fifty or more delegates in attendance.

J. A. McLellan, agent, Atlantic Coast Line, Montgomery, was elected president of the new organization. Under the by-laws the state is divided into three regions, each under the jurisdiction of a vice-president.

D. T. Mayo, of the office of the general agent of the Illinois Central-Central of Georgia, at Birmingham, was elected

SAVE gaskets . . . LOWER maintenance with the Franklin Sleeve Joint



THE FRANKLIN SLEEVE JOINT

Here is an improved flexible connection free from limitations for conveying air, steam and oil between engine and tender.

It offers two outstanding features—flat gaskets and wide spread bearings supporting the sleeve—which assure longer life at lower maintenance costs.

Due to the wide spacing of the sleeve bearings, the sleeve and gasket always maintain true alignment. There is no tendency to "cock". Bearing wear is greatly reduced . . . gasket life is prolonged.

Uniform wear is assured when flat gaskets are used. Little area is exposed to line pressure and foreign matter is easily kept out of the joint, reducing abrasive action and undue gasket wear.

In any flexible connection the gasket is the important maintenance item. By using Franklin Sleeve Joints with their flat gaskets not only is maintenance reduced, but when gaskets are renewed, the first cost of the flat type is far lower.

Now is the time to get ready for winter.

FRANKLIN RAILWAY SUPPLY COMPANY, INC.

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vice-president of the northern region. G. A. Mannegold, of the joint agency of the Western of Alabama-Central of Georgia at Montgomery, was elected vice-president of the central region. Emory S. Thomas of the Railway Express Agency at Mobile was elected vice-president in charge of the southern region. Cary Harden, president of the Seaboard Air Line Club at Montgomery, was elected secretary. Raymond E. Thomasson, of Birmingham, president of the L. & N. Employees Club there, was elected treasurer.

The purpose of the new organization was announced as:

"To further a spirit of good will among all employees and between the railroads and the public, to solicit business for the railroads and express companies, and to promote legislation having for its purpose the regulation and control of all common and contract carrier trucks and busses, the adoption of reasonable standards for rolling equipment operated on the highways and for their enforcement in the interest of the safety of the public."

Wm. Stivers of Montgomery, engineer for the Atlantic Coast Line, presided over the meeting as temporary chairman.

Increased Pullman Rates in Louisiana

Following an investigation which was begun on June 6, 1921, the Interstate Commerce Commission has issued a decision finding that the refusal of the Louisiana Public Service Commission to allow an increase in Pullman rates, intrastate, in Louisiana at the time the interstate rates were generally increased, on May 1, 1920, resulted in unjust discrimination against interstate commerce and in an average loss of approximately \$40,000 a year to the Pullman Company as compared with the revenue it would have received from its Louisiana intrastate sleeping and parlor car business under the standard rates in effect for similar services elsewhere throughout the country.

The commission finds that the standard level of interstate rates is not so high as to cause any appreciable curtailment of Louisiana intrastate travel and orders the establishment of standard rates for such service on or before October 10. The report does not indicate why it was so long delayed, except that it shows that after a further hearing in December, 1931, at which the Louisiana commission offered no testimony, Division 1 of the Interstate Commerce Commission promulgated a tentative valuation of the Pullman Company's property as of December 31, 1931, of \$174,200,000. On this basis, the report says, the company's rate of return for the year 1931 was only 1.72 per cent.

It is pointed out in the report that the increase of 1920 was the only general increase in Pullman rates since the establishment of the company in 1867 and that "the increased rates have been in effect for approximately 12 years during which time we have not been required to pass upon their reasonableness"; also that "notwithstanding the very material decrease in travel by rail, there has been a substantial

increase in the percentage of Pullman passenger miles every year since 1922." During the first six months of 1931 65.03 per cent of rail passenger miles, exclusive of commutation fares, was in Pullman cars.

It was further pointed out that the company had shown that during 1927, 1928, and 1929 the rate of return on its property investment averaged 4.14 per cent, and on property value 4.29 per cent; that during 1930 the return on property investment was 1.62 per cent, and on property value 1.85 per cent; and that for the six months ended June 30, 1931, the return was less than 1 per cent on each basis. While no segregation of the value of the property in Louisiana had been made, a witness for the company had testified that the average annual return from operations in the state for 1928 and 1929 was only 2.2 per cent.

P.R.R. Plans N. Y.-Philadelphia Electric Operation in February

Electric train service between New York and Philadelphia will be inaugurated by the Pennsylvania next February, according to plans recently outlined by M. W. Clement, vice-president in charge of operation. Work at all points between these two cities shall be pushed forward with that date as a goal.

While the electrification of the tracks is progressing, a portion of the northwest section of the new Pennsylvania station on the west bank of the Schuylkill river in Philadelphia will be completed. Two tracks with a platform between them will be built through the lower level of the station proper to take care of the through north and south trains which are now using the old West Philadelphia passenger station. This latter station, long a land mark of the city, will then be abandoned.

The greater portion of the construction work incident to electrifying the line between the two major cities has been completed. Between Trenton and New Brunswick, N. J., it is well under way and the erection of the overhead wires is progressing rapidly. From Trenton westward to Philadelphia this work has been completed. Electric operation of trains in suburban service between Trenton and Philadelphia has been in effect since July 1, 1930.

The track lay-outs of the approach to the new station in West Philadelphia are such as to permit of operating trains either to the lower level, or through the upper, or suburban section of the station. When, therefore, through service is started, passengers will use the waiting room and station facilities of the suburban portion of the new building until the entire station project has been completed and placed in use.

Some of the electric engines that will haul these passenger trains in this territory are being received at the present time. A total of 52 will be required for handling through passenger trains between New York and Philadelphia. All of them will have been received prior to February, under the present working schedule. Suburban trains in this section will continue to be of the multiple-unit type.

Foreign

New South Wales Government Railways in 1930-31

A deficit equivalent after interest charges and exchange premiums to \$21,533,289 (pounds converted at par) was reported by the New South Wales (Australia) Government Railways for the year ending June 30, 1931. This compares with a 1929-30 deficit after interest charges of \$13,423,541 and a 1928-29 loss of \$5,061,810.

Comparative figures of financial results for the past two years are shown in the following tabulation:

	1930-31	1929-30
Gross Revenues	\$74,051,959	\$86,815,990
Operating Expenses....	62,821,276	72,867,000
Net Revenues	\$11,230,683	\$13,948,990
Allowance for Developmental Line Losses..	3,896,000	3,896,000
Interest Charges	\$15,126,683	\$17,844,990
Exchange on Interest Remitted to London	33,067,699	31,268,531
Deficit	\$21,533,289	\$13,423,541

Note: Par value (\$4.87) used in converting pounds to dollars.

As will be seen from the foregoing, 1930-31 gross revenues were \$12,764,000 less than those of the previous year and operating expenses were at the same time reduced by more than \$10,000,000. The latter was due largely to wage adjustments and reductions in staff, these factors accounting for nearly \$7,000,000 of the total. The remainder is accounted for, in the main, by the reduction of 1,220,311 in the train miles operated as compared with 1929-30.

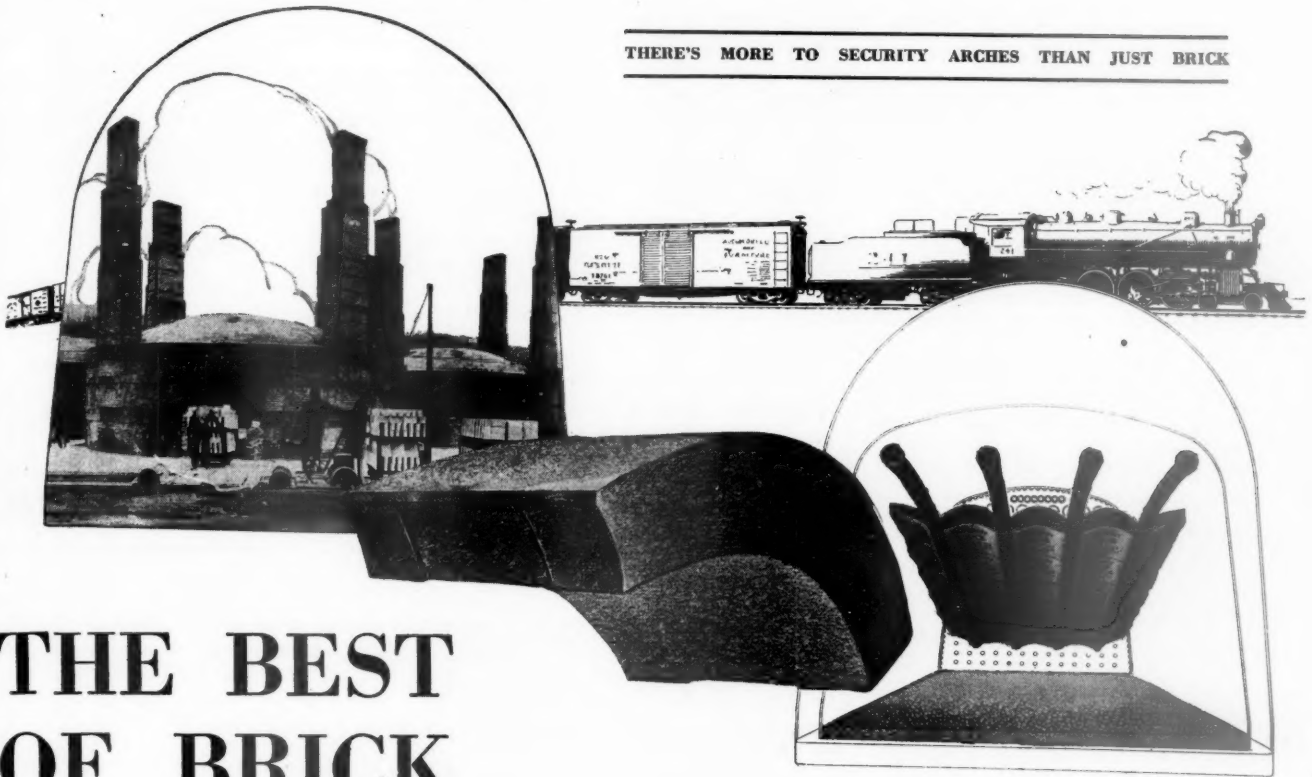
The revenue loss arose in about equal proportions from declines in passenger and freight traffic and is attributed in the report to the "dual influence of motor transport competition and the general industrial depression." Both of these influences were operating during the year under review but since its close, the report adds, "the problem of motor transport competition has been dealt with by the legislature in the State Transport (Coordination) Act." This New South Wales transport act, according to recent reports to the United States Department of Commerce, vests complete control of highway traffic, as well as wide discretionary powers, in a transport board appointed by the premier. It restricts the normal use of commercial highway vehicles within a radius of 20 miles of the nearest railway stations and levies a tax of three pence (six cents) per ton-mile on all movements outside the prescribed area.

Central Argentine Opens New Line

The new branch line of the Central Argentine Railway, cutting through the northern center of the republic to connect Villa del Rosario in the province of Córdoba with the station of Forres in Santiago del Estero, was opened for operation on August 20 by Manuel Alvarado, Minister of Public Works, and H. A. Vernet, chairman of the board of directors of the railway of

Continued on next left-hand page

THERE'S MORE TO SECURITY ARCHES THAN JUST BRICK



THE BEST OF BRICK For American Arch Customers

NO structure is any better than the materials of which it is made. This applies with particular force to the locomotive Arch.

To be sure of good Brick from convenient locations American Arch Company supplies the railroads exclusively from the following plants:—

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REFRACTORIES CO.**
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Alabama
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**NORTH AMERICAN
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IRONTON FIRE BRICK CO.
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**DENVER SEWER PIPE
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MOULDING-BROWNELL CORP.
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GLADDING-McBEAN & CO.
California
Washington

DIAMOND FIRE BRICK CO.
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**DOMINION FIRE BRICK &
CLAY PRODUCTS LTD.**
Saskatchewan, Canada

**CANADA FIRE BRICK
CO., LTD.**

Ontario, Canada
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AMERICAN ARCH CO.

Incorporated
NEW YORK • CHICAGO
**LOCOMOTIVE COMBUSTION
SPECIALISTS**

London, who is visiting the Argentine. The last spike was driven at Sumampa. This joining of the two rail ends marks the completion of the only major piece of railway construction at present under way in South America. The line through primitive and fertile areas, which it now opens to active settlement, follows the old wagon and mule route of colonial days between Buenos Aires and Lima, Perú, traveled as early as 1771.

The new line is 281 miles in length. It brings rail communication to a still virgin part of the Argentine rich in possibilities for the growing of wheat, corn and linseed, and for the raising of cattle.

In parts of Santiago del Estero which it traverses, the region is dry and covered with heavy forest which, upon being converted into charcoal a basic native industry, will provide an immediate traffic lasting for many years.

Once clear of forest and irrigated, this land in Santiago del Estero, according to expert agricultural advice, will prove excellent for the raising of grain crops. For the purpose of irrigation an immense project, involving the damming of the Rio Dulce, has long been discussed by the provincial authorities and will doubtless be given impetus by the opening of this new line.

This project of the Central Argentine Railway, contemplated in the first place as early as 1911, and upon which active construction was commenced in 1927, as well as penetrating a still unsettled and undeveloped part of the country, opens a direct route by way of Córdoba between Tucumán, the great sugar center of the north, and Mendoza, the wine growing district at the foot of the Andes immediately west of Buenos Aires.

Its cost represents about \$12,000,000 (U. S. gold) and in the actual work of construction there have been as many as 5,000 men employed. During the last year, this number has been reduced to about 2,000.

Despite the prevailing difficult situation of Argentine railways, the Central Argentine has made every endeavor to carry to a successful conclusion the building of this line having in mind the rich possibilities from a traffic standpoint of the new territories to be tapped and the effort and money previously invested.

Equipment and Supplies

IRON & STEEL

THE ERIE is inquiring for steel to be used in bridge construction work.

THE MISSOURI PACIFIC is inquiring for 500 tons of structural steel for a bridge at Paroquet, Ark.

Supply Trade

Bert C. Wilkerson has been appointed sales representative of the **Peerless Equipment Company** for the southern and eastern territory with headquarters at 230 Park avenue, New York.

Dan R. Long has been appointed district sales manager of the **Pennsylvania-Dixie Cement Corporation**, in charge of activities in metropolitan and suburban New York, northern New Jersey and western Connecticut, with headquarters at 60 East Forty-second street, New York.

The General Refractories Company, Philadelphia, Pa., has concluded an arrangement with the **McLeod & Henry Company**, Troy, N. Y., whereby the former is now in position to offer to the trade the **Carbex** (silicon carbide) commodities manufactured by the **McLeod & Henry Company**.

W. J. Harris, purchasing agent of the **American Car & Foundry Company**, New York, has been appointed purchasing agent also of the **J. G. Brill Company**, an affiliate of the **American Car & Foundry Company**; **F. J. Larkins** has been appointed supply agent, under Mr. Harris, with headquarters at Philadelphia, Pa.

The United States Steel Corporation has authorized an expenditure of about \$5,000,000 for replacement and improvement of equipment in several of its plants located in Ohio, Illinois-Indiana, Alabama and Pennsylvania, according to an announcement of **Myron C. Taylor**, chairman of its finance committee. The production and installation of this equipment will give employment to a considerable number of men throughout the winter.

Paul W. Cotton, for the past 15 years northwest manager of sales for the **Pacific Coast Steel Corporation**, a subsidiary of the **Bethlehem Steel Company**, has been transferred to San Francisco, Cal., as general manager of sales for the same company, with jurisdiction over the Pacific Coast sales. Mr. Cotton commenced his career with the **Republic Iron & Steel Company**, at Cleveland, Ohio; he was later transferred to St. Louis as manager of sales for the St. Louis district, remaining in that position until 1918, at which time he went with the **Pacific Coast Steel Corporation**, with headquarters at Seattle, Wash.

W. H. Marland, president of **Sanford Mills**, Sanford, Me., has been elected president of **L. C. Chase & Company, Inc.**; **George B. Ogan**, formerly resident partner of the **Chase Company** at Chicago, has been elected general manager; **W. N. Campbell**, president of the **Goodall Worsted Company**, has been elected treasurer and **W. O. Emery**, of Sanford, clerk. In addition to these officers the

directors include **Fred C. Hopewell**, president of the **Reading Rubber Manufacturing Company**, and **George K. Ripley**, president of the **Troy Mills**, Troy, N. H. The sales office has been moved from Boston to New York and general headquarters have been opened at 295 Fifth avenue, at which office all the affairs of the company as selling agents for **Sanford Mills**, the **Reading Rubber Manufacturing Company** and the **Troy Mills** will be directed.

OBITUARY

Basil W. Matthews, a New York advertising man and formerly for a number of years with the copy service department of the **Simmons-Boardman Publishing Company**, died of a heart attack at his home at Scarsdale, N. Y., on August 21 at the age of 46.

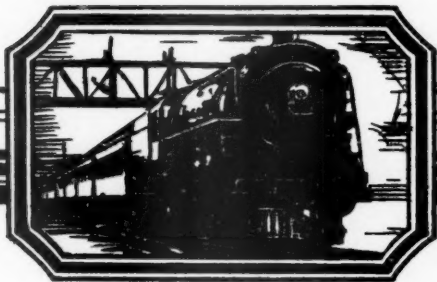
Construction

DEL RIO & NORTHERN.—The Interstate Commerce Commission has denied the application of this company for authority to construct a line from Del Rio, Tex., northward to Sonora and southward to Quemado, 132 miles.

PERE MARQUETTE.—A contract for the construction of a culvert to replace a single-track 60-ft. girder span at Reed City, Mich., has been awarded to the **Jutton-Kelly Company**, Detroit, Mich., at a cost of about \$34,000. A contract has been awarded to the **D. W. Thurston Company**, Detroit, for the reconstruction of a car-ferry slip at Windsor, Ont. The latter project has an estimated cost of \$100,000.

SEATRAN LINES, INC.—Construction work on this company's new New York terminal facilities, to be located at the foot of Fourteenth street, Hoboken, N. J., is now under way. **J. Rich Steers, Inc.**, New York, is the general contractor; while the 125-ton crane for handling freight cars in and out of the **Seatrains** vessels is being constructed by the **Shepard-Niles Crane & Hoist Company**, and the bridge work is being done by the **American Bridge Company**. Two 250-hp. electric motors, both equipped for regenerative and dynamic braking, will be supplied by the **General Electric Company** for operating the hoists, and the same manufacturer will also furnish one 100-hp. motor for handling the bridge motion. The two 14,000-ton freight vessels, "**Seatrains** New York" and "**Seatrains** Havana," which will be operated by **Seatrains** Lines between New York and Havana, Cuba, are now under construction by the **Sun Shipbuilding Company**, Chester, Pa. They will be launched in mid-September and will open the new overseas freight service shortly thereafter. Each of the ships will cost about \$1,580,000; will have a speed of 16½ knots, and will accommodate 100 loaded freight cars. A description of the methods used during the past four years in transporting loaded cars between Havana

Continued on next left-hand page



Alco

Alco

TO ECONOMIZE— MODERNIZE

"IF the railroads are to maintain a sufficiently strong position in the transportation field to develop any appreciable increase in ton-mile volume, they cannot wait for the increase to furnish the incentive to improve their motive-power situation. The future of the railroad industry depends upon its ability to furnish better service at lower cost. Better freight service is coming increasingly to require higher train speeds. Lower cost requires greater train loads. Modern locomotives are meeting both these requirements. Locomotives twenty, or even ten years old cannot meet them."

RAILWAY AGE, July 30th, 1932.

American Locomotive Company
30 Church Street New York N.Y.

Alco

Alco

and New Orleans, La., over the original Seatrain route, was published in the *Railway Age* of September 15, 1928, page 492, while announcement that this service was to be extended by inauguration of a New York-Havana line was made in the issue of May 28, 1932, page 921.

Financial

ALTON.—Abandonment.—The Interstate Commerce Commission has authorized this company to abandon two segments of its line, one extending from Barnett Junction, Ill., to the easterly side of Carlinville, and the other extending from the westerly side of Carlinville to Carrollton, an aggregate mileage of 38.1.

APACHE.—R. F. C. Loan.—The receiver has applied for a loan of \$147,896 from the Reconstruction Finance Corporation to pay taxes.

ATCHISON, TOPEKA & SANTA FE.—Lease of Subsidiaries.—The Interstate Commerce Commission has authorized control by the Santa Fe of the Kansas City, Mexico & Orient and the Oil Fields & Santa Fe under new leases substituted for those heretofore in force.

BALTIMORE & OHIO.—R. F. C. Loan Approved.—A loan of \$31,625,000 from the Reconstruction Finance Corporation to refinance one-half of this company's outstanding 20-year 4½ per cent convertible bonds which mature March 1, 1933, was approved on August 19 by Division 4 of the Interstate Commerce Commission, consisting in this case of Commissioners Aitchison, McManamy and Mahaffie, on an application dated August 9 which was not made public by the commission until August 18. This is not only the largest single loan approved for any railroad under the R.F.C. act but brings the total of loans approved for the Baltimore & Ohio up to \$64,125,000 in addition to \$2,500,000 approved for the Alton. The commission had previously approved loans amounting to \$32,500,000 to this company, largely for the purpose of paying one-half of the note issue due August 10 and various bank loans, and the supplemental application was handled in much less time than the commission has taken for the consideration of other large loans. The loan is to be payable in instalments of \$6,325,000 upon approval and \$25,300,000 on or about December 15. The company has also applied to the commission for authority to issue \$63,250,000 of refunding general mortgage bonds in two series, at 5 per cent and 6 per cent, and it is proposed to offer to pay to the holders of the convertible bonds at or before their maturity, and upon the surrender thereof, 50 per cent of the principal in cash, with interest to maturity. For the remaining 50 per cent it is proposed to deliver an equal principal amount of the refunding and general mortgage bonds, Series F, due in 1995 and bearing interest at 5 per cent from March 1, 1933. As evi-

dencing their acceptance of the plan the holders of the maturing bonds will be asked to present their bonds to be stamped with an appropriate legend. As an inducement for prompt assent the company proposes to pay to the holders of the bonds presented for stamping on or before an early date to be fixed, 10 per cent of the principal in cash and should bonds in satisfactory amount be presented and stamped by December 1, it is the purpose to pay on December 15 the additional 40 per cent in cash. As security for the loan the company offered, in addition to the collateral heretofore pledged, \$31,625,000 of refunding and general mortgage Series E 6 per cent bonds due April 1, 2,000; 250,000 shares of stock of the Alton; 52,582 shares of the stock of the Cincinnati, Indianapolis & Western, and certificates of beneficial interest for 332,594 shares of stock of the Western Maryland now held by a trustee under a Clayton law order. The commission's certificate also required in addition to these securities \$2,995,550 par value of stock of the Buffalo & Susquehanna. With the application the company had submitted a statement of its operations for the first six months of this year, showing a net deficit of \$4,752,299, and an estimate of operations for the second six months showing a net income for that period of \$2,624,000, or a net deficit for the year of \$2,128,299.

BROOKLYN EASTERN DISTRICT TERMINAL.—Tentative Recapture Report.—Division 1 of the Interstate Commerce Commission has issued a revised tentative recapture report finding excess income for the years 1922 to 1927, inclusive, amounting to \$861,382, accompanied by an order directing the payment of one-half that amount unless protest is filed by September 7. A tentative report approved on October 30 by Division 1 was withdrawn for extensive revision.

CANTON & CARTHAGE.—R. F. C. Loan.—This company has applied for a loan of \$150,000 from the Reconstruction Finance Corporation to liquidate its indebtedness to the Pearl River Valley Lumber Company.

CHICAGO GREAT WESTERN.—Abandonment and Substitution of Operation under Trackage Rights.—The Interstate Commerce Commission has authorized this company to abandon operation of its line between Altura, Minn., and Rollingstone, 8.7 miles; to construct a short connection a mile west of Utica with the Chicago & North Western; and to operate over the North Western from this point to Winona, 23.9 miles, and over the Chicago, Burlington & Quincy and the Winona Bridge Railway in Winona to a connection with its own tracks. The change will obviate excessive operating and rehabilitation expenses on the segment of line to be abandoned.

CHICAGO & NORTH WESTERN.—Abandonment.—Authority for the abandonment of parts of three branch lines in Michigan, the Michigamme, Republic and Champion

branches, a total of 17 miles, is asked in an application filed with the Interstate Commerce Commission.

CHICAGO & NORTH WESTERN.—R. F. C. Loan.—This company has applied to the Interstate Commerce Commission and the Reconstruction Finance Corporation for an additional loan of \$5,000,000 to pay one-half of its \$10,000,000 bank loans from 18 banks which are due October 13. The loans were made a year ago at 4¾ per cent, and one-half of the amount will be extended for two years. The company on February 19 applied for a loan of \$26,000,000 of which the commission approved \$7,600,000 on February 23.

FRANKLIN & PITTSYLVANIA.—Abandonment.—The receiver has applied to the Interstate Commerce Commission for authority to abandon the line from Rocky Mount, Va., to Angles, 21 miles.

HARTFORD EASTERN.—Abandonment.—This company, which recently applied to the Interstate Commerce Commission for authority to suspend service "at least until January 1, 1935," on its line of 42 miles from Hartford, Wash., into the Cascade mountains, because of inability to obtain sufficient patronage to pay operating expenses, has filed a new application for authority to abandon operation.

HOBOKEN MANUFACTURERS.—Notes.—This company has withdrawn its application to the Interstate Commerce Commission and the Reconstruction Finance Corporation for a loan for the purpose of making various improvements in its property and has applied to the commission for authority to issue \$320,000 of three-year 6 per cent notes for the purpose.

LEHIGH & NEW ENGLAND.—Tentative Recapture Report.—The Interstate Commerce Commission has issued a tentative recapture report finding \$1,503,397 of excess income for the years 1920, 1923, 1924, 1926, and 1927, of which one-half would be recapturable.

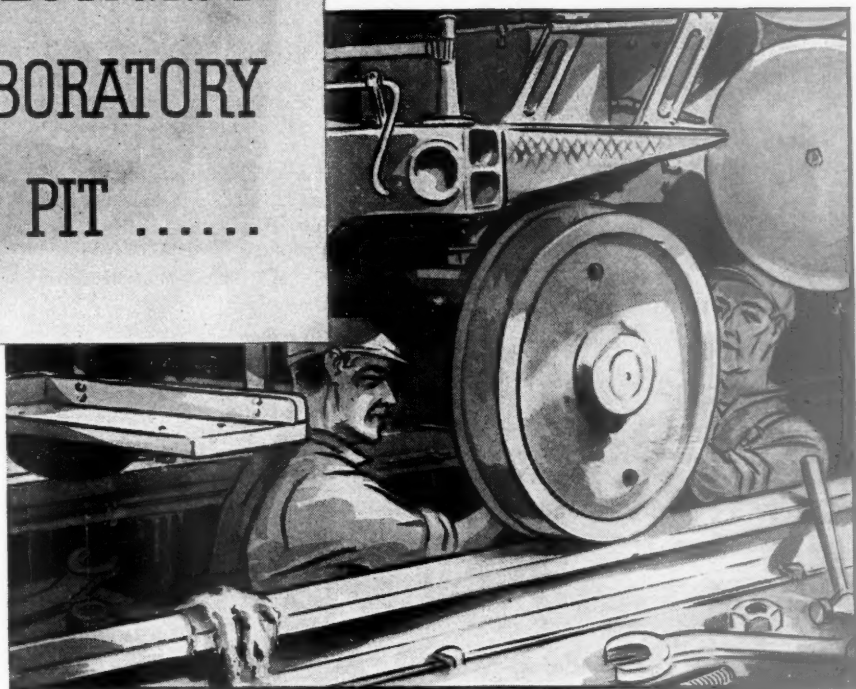
MARQUETTE & BESSEMER DOCK & NAVIGATION.—Abandonment of Car Ferry.—The Interstate Commerce Commission has authorized this company to abandon within the United States the operation of its car ferry line between Conneaut Harbor, Ohio, and Port Stanley, Ont.

MOBILE & OHIO.—Abandonment.—The receiver has applied to the Interstate Commerce Commission for authority to abandon a branch line from Okolona, Miss., to Calhoun City, 37.34 miles.

MOBILE & OHIO.—Receiver's Certificates.—The Interstate Commerce Commission has authorized the receiver of this company to issue \$1,070,599 of receiver's to secure and evidence a loan for this sum from the Reconstruction Finance Corporation.

SEABOARD AIR LINE.—Abandonment.—The Interstate Commerce Commission has authorized this company and its receivers

A METALLURGIST WHOSE LABORATORY IS A SHOP PIT



Two weeks in the round house and back shop...working from whistle blow to whistle blow...shoulder to shoulder with the machinists...overalls grimy with the dirt and grease of the shop pit...finally the locomotive rolls away, tight with staybolts and frame bolts that will stay tight—and a man climbs from the pit, doffs his overalls and washes up. « He's a metallurgist, yes, and a good one; but he's a practical railroad man, too. He's not supposed to sell anything; in fact, he doesn't even carry a price list. He's Republic's Railroad Metallurgist. « For more than ten years Republic's Railroad Metallurgists have worked in laboratory and railroad shop to perfect staybolt materials which successfully meet the loads imposed by modern pressures, high temperatures and present-day operating speeds. All that these men have learned is yours for the asking. No obligation, of course; just pick a tough job, the kind they like to whip.

Toncan Iron Boiler Tubes, Agathon Staybolt Iron •
Pipe, Plates, Culverts, Climax Steel Staybolts
Rivets, Staybolts, Tender • Upson Bolts and Nuts •
Plates and Firebox Sheets • Track Material, Maney
• Sheets and Strip for Guard Rail Assemblies •
special railroad purposes • Enduro Stainless Steel for
• Agathon Alloy Steels for dining car equipment, for
Locomotive Parts • Agathon Engine Bolt Steel • Agathon
Nitralloy • Agathon Iron Nickel Forging Steel
for pins and bushings • (20-27 Carbon) . . .



The Birdsboro Steel Foundry & Machine Company of Birdsboro, Penna., has manufactured and is prepared to supply under license, Toncan Copper Molybdenum Iron castings for locomotives.

C E N T R A L A L L O Y D I V I S I O N
REPUBLIC STEEL CORPORATION
M A S S I L L O N O H I O



to abandon a line from Andrews, S. C., to Lanes, 19 miles.

TENNESSEE CENTRAL.—Bonds.—The Interstate Commerce Commission has authorized this company to issue \$120,000 of 6 per cent, series A, first mortgage bonds in partial reimbursement of capital expenditures, the bonds to be used as collateral security for short term notes.

Dividends Declared

Atlanta & Charlotte Air Line Railway.—4½ per cent, semi-annually, payable September 1 to holders of record August 20.

Boston & Albany.—\$2.00, quarterly, payable September 30 to holders of record August 31.

Chestnut Hill.—75c, quarterly, payable September 6 to holders of record August 20.

Delaware & Bound Brook.—2 per cent, quarterly, payable August 20 to holders of record August 17.

Philadelphia, Germantown & Norristown.—3 per cent, quarterly, payable September 6 to holders of record August 20.

Pittsburgh, Youngstown & Ashtabula.—Preferred, 1¾ per cent, payable September 1 to holders of record August 20.

Average Prices of Stocks and of Bonds

	Aug. 23	Last week	Last year
Average price of 20 representative railway stocks..	29.93	26.55	59.28
Average price of 20 representative railway bonds..	71.27	64.51	85.53

Tentative Valuation Reports

The Interstate Commerce Commission, Division 1, has issued tentative valuation reports finding the final value for rate-making purposes of the property owned and used for common carrier purposes as of the respective valuation dates, as follows:

Indian Valley	\$645,000	1927
Nez Perce & Idaho	160,000	1927
Peru, La Salle & Deer Park	65,000	1927

IMPORTANT CHANGES in the organization of the traffic department of the London, Midland & Scottish of Great Britain were outlined in a recent article appearing in the Railway Gazette (London). Outstanding features of the reorganization are the appointments of a chief commercial manager and a chief operating manager, the former to have charge of all freight and passenger traffic solicitation, and all dealings of the company with its patrons, and the latter to be entirely responsible for train and station operations.

Under the previous organization the chief general superintendent and the chief goods manager, whom the new officers replace, had overlapping responsibilities in connection with operating and traffic matters. The present change follows the decentralization of the L.M.S. passenger traffic department in 1931 and a readjustment in the executive set-up early this year, which latter reduced the number of vice-presidents from four to three and placed the operating and traffic departments under the direction of Vice-President E. J. H. Lemon. The plan also involves the appointment of a chief officer for Scotland who will represent all departments there.

Railway Officers

EXECUTIVE

Nicolás Procel, superintendent of car service of the National Railways of Mexico, has been elected vice-president and general manager, with headquarters as before at Mexico, D. F., succeeding **Francisco de P. Landa**, who has resigned. **Lorenzo Perez Castro**, executive vice-president, at Mexico, D. F., has also resigned.

F. W. Charske, vice-chairman of the Executive committee of the Union Pacific, with headquarters at New York, has been elected chairman of the Executive committee, with the same headquarters, to succeed **C. B. Seger**, retired. **William M. Jeffers**, vice-president in charge of operations, with headquarters at Omaha, Neb., has been elected executive vice-president, with the same headquarters. The posts of vice-president in charge of operation and vice-chairman of the Executive committee have been abolished.

Mr. Seger was born in New Orleans, La., on August 29, 1867, and began his career on March 1, 1883, as an office boy on the Morgan's Louisiana & Texas Railway & Steamship Company. Later he was promoted to clerk, steamship auditor, traveling auditor and chief clerk to the general auditor. From 1893 to 1904 he was auditor and secretary of the Galveston, Harrisburg & San Antonio, now the Texas & New Orleans. From 1900 to 1904 he was also auditor and secretary of the Galveston, Houston & Northern Railway, now the Texas

president and controller of the Union Pacific System. In 1918 he served as acting chairman of the Executive committee of the Union Pacific, and in 1924 was appointed chairman of the Executive committee, which position he held until his retirement.

Mr. Charske was born on January 26, 1881, at Hempstead, Tex., and was educated at the A. & M. College of Texas. He entered railway service in April, 1901, as a clerk in the office of the auditor of passenger accounts of the Texas Lines of the Southern Pacific at Houston, Tex., following which in November, 1901, he entered the employ of



F. W. Charske

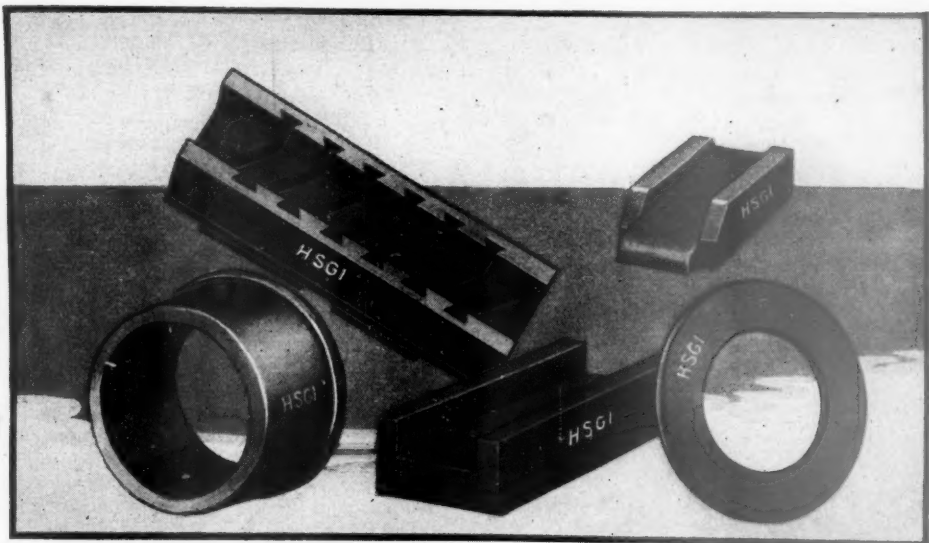
the New York, Texas & Mexico, and later that of the Gulf Western Texas & Pacific, now a part of the Texas lines of the Southern Pacific. From August, 1903 to January, 1910, he was a chief clerk in the passenger accounting department of the Louisiana lines of the Southern Pacific at New Orleans, La., while from the latter year to March, 1911, he was assistant to the auditor of passenger accounts of the Pacific system of the same company. In March, 1911, he was appointed special accountant on the staff of the controller of the Union Pacific and Southern Pacific systems at New York, which position he held until May, 1914, when he was appointed auditor of freight accounts of the Union Pacific at Omaha, Neb. He held the latter position until October, 1917, when he was appointed auditor of the Oregon Short Line at Salt Lake City, Utah, a position he held until August, 1918, when he was appointed general accountant of the Union Pacific System at New York. On December 1, of that year he was promoted to assistant to the president, which position he held until January 1, 1920, when he was appointed controller at New York. In 1923 he was elected vice-president and controller in charge of the New York office, and in 1928 was made vice-chairman of the Finance committee. In 1930 he was appointed vice-chairman of the Executive committee, which position he has held until his recent appointment.

Mr. Jeffers was born on January 2, 1876 at North Platte, Neb., and entered



C. B. Seger

& New Orleans. In the latter year he was appointed auditor of the Pacific system of the Southern Pacific at San Francisco, Cal., which position he held until 1909 when he was appointed general auditor of the Union Pacific System and the Southern Pacific Company. In 1911 he was promoted to deputy controller and in 1913 was promoted to vice-



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When your crosshead shoes, rod bushings, hub liners, shoes and wedges are made of HUNT-SPILLER *Air Furnace* GUN IRON.

The unsurpassed wearing qualities of this material assure maximum resistance to the severe service imposed on these vital parts.

Why continue to put up with pounding crossheads, rods and driving boxes? Why not use a material that will absorb the initial shocks and wear—reduce roundhouse maintenance and prolong the serviceability of your locomotives? Insist upon HSGI Castings for these vital parts.

HSGI

Reg. U. S. Trade Mark

Cylinder Bushings
Cylinder Packing Rings
Pistons or Piston Bull Rings
Valve Packing Rings
Valve Bull Rings
Crosshead Shoes
Hub Liners
Shoes and Wedges
Floating Rod Bushings

Parts Finished for
Application

Dunbar Sectional Type
Packing
Duplex Sectional Type
Packing for Above
(Duplex Springs for Above
Sectional Packing)
Cylinder Snap Rings
Valve Rings All Shapes

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railway service when 14 years of age as a messenger and call boy for the Union Pacific at that point. While a messenger, he learned telegraphy and became a train dispatcher at North Platte before he was 19 years old, having previously served as clerk in the maintenance of way department and as a timekeeper and extra foreman on a steel gang. In 1900 Mr. Jeffers was advanced to chief dispatcher at North Platte, where he remained until 1905 when he was promoted to trainmaster at Green River, Wyo. He was transferred to Denver in 1906, and in the following year he was promoted to assistant superintendent at



W. M. Jeffers

Green River, becoming superintendent at that point in 1909. From 1911 to 1915 Mr. Jeffers served successively as superintendent of the Utah, Wyoming and Nebraska divisions, and he was then promoted to general manager of the Union Pacific unit of the system. During federal control of the railroads he was also in charge of all railroad terminals at Omaha and Council Bluffs, Iowa, and was fuel administrator in those cities. From 1923 to 1928 Mr. Jeffers was chairman of the Committee of General Managers of the western railroads, handling labor disputes in western territory. He was elected vice-president in charge of operation of the Union Pacific System, with headquarters at Omaha, on October 1, 1928, which position he has held until his recent appointment.

FINANCIAL, LEGAL AND ACCOUNTING

R. Adams, associate auditor of the Southern Pacific, Pacific Lines, has been appointed to the newly-created position of assistant general auditor in immediate charge of all accounts of the Pacific Lines and affiliated companies, with headquarters as before at San Francisco, Cal., and the position of associate auditor has been abolished. **W. B. Burris**, assistant auditor, has been appointed to the newly-created position of assistant general auditor, and **P. J. Kendall**, chief clerk to the auditor, has been appointed assistant to the general auditor, both with headquarters as before at San

Francisco. The positions formerly held by Mr. Burris and Mr. Kendall have also been abolished. **C. B. Friend**, auditor of capital expenditures, has been appointed auditor of disbursements, to succeed **J. Kennedy**, who has retired, and **R. E. Currie**, auditor of valuation, has been appointed auditor of capital expenditures to succeed Mr. Friend. Mr. Kennedy and Mr. Currie will retain their headquarters at San Francisco.

TRAFFIC

Charles Burlingame has been appointed general western agent of the Terminal Railroad Association of St. Louis, with headquarters at Los Angeles, Cal., succeeding **Frank M. Miller**, deceased.

J. S. Bock, general agent for the Great Northern, with headquarters at Spokane, Wash., has been promoted to assistant general freight agent, with headquarters at St. Paul, Minn. **James M. Doyle**, assistant superintendent at Spokane, who was granted a leave of absence early this year because of ill health, succeeds Mr. Bock as general agent at that point.

A. M. Baker, commercial agent of the Seaboard Air Line, with headquarters at Tampa, Fla., has been appointed district freight agent at West Palm Beach, Fla., and the position of commercial agent at Tampa has been abolished. **L. A. Jones** has been appointed city freight agent at Tampa for the same road.

OBITUARY

Hiram R. McCullough, who retired on January 1, 1921, as vice-president in charge of traffic of the Chicago & North Western, with headquarters at Chicago, died in that city on August 21 at the age of 80 years.

W. H. Hall, general superintendent of telegraph of the Missouri-Kansas-Texas, with headquarters at Denison, Tex., died at his home at that point on July 31, following a heart attack. Mr. Hall was born on October 31, 1869, at Hannibal, Mo. He entered railway service on December 1, 1888, as an operator for the Katy at Hannibal, serving this road continuously until his death. In 1891, he was transferred to Denison and four years later he was sent to Sedalia, Mo., as a clerk in the office of the superintendent of telegraph. He was advanced to assistant superintendent of telegraph at Denison in 1908, being further promoted to superintendent of telegraph in 1913. Ten years later Mr. Hall's title was changed to general superintendent of telegraph.

Louis Lavoie, general purchasing agent of the Canadian National, with headquarters at Montreal, Que., died in that city on August 19 at the age of 52 years. Mr. Lavoie was born at Rimouski, Que., on June 22, 1879. He

was educated at St. Joseph University, New Brunswick, and entered railway service in October, 1894, with the Intercolonial Railway (now part of the C. N. R.) as junior clerk, serving successively until September, 1905, as clerk in the office of the general manager, as secretary to the manager's assistant, as private secretary to the general superintendent and as chief clerk to the general superintendent. From September, 1905, to April, 1909, Mr. Lavoie was assistant to the general manager of the same road. He became assistant to member (general superintendent), Government Railways, Managing Board, on the latter date, serving in that position



Louis Lavoie

until November, 1909, when he became purchasing agent of the Canadian Government Railways at Ottawa, Ont. In March, 1910, he was appointed purchasing agent, Department of Railways and Canals, embracing Government Railways, Dominion Canals, and the Hudson Bay Railway. He was further advanced to the position of assistant general purchasing agent of the Canadian National in January, 1919, serving in that capacity until December, 1920, when he was appointed general purchasing agent at Montreal, the position he held at the time of his death.

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